

PROGRESS AND PURPOSE:

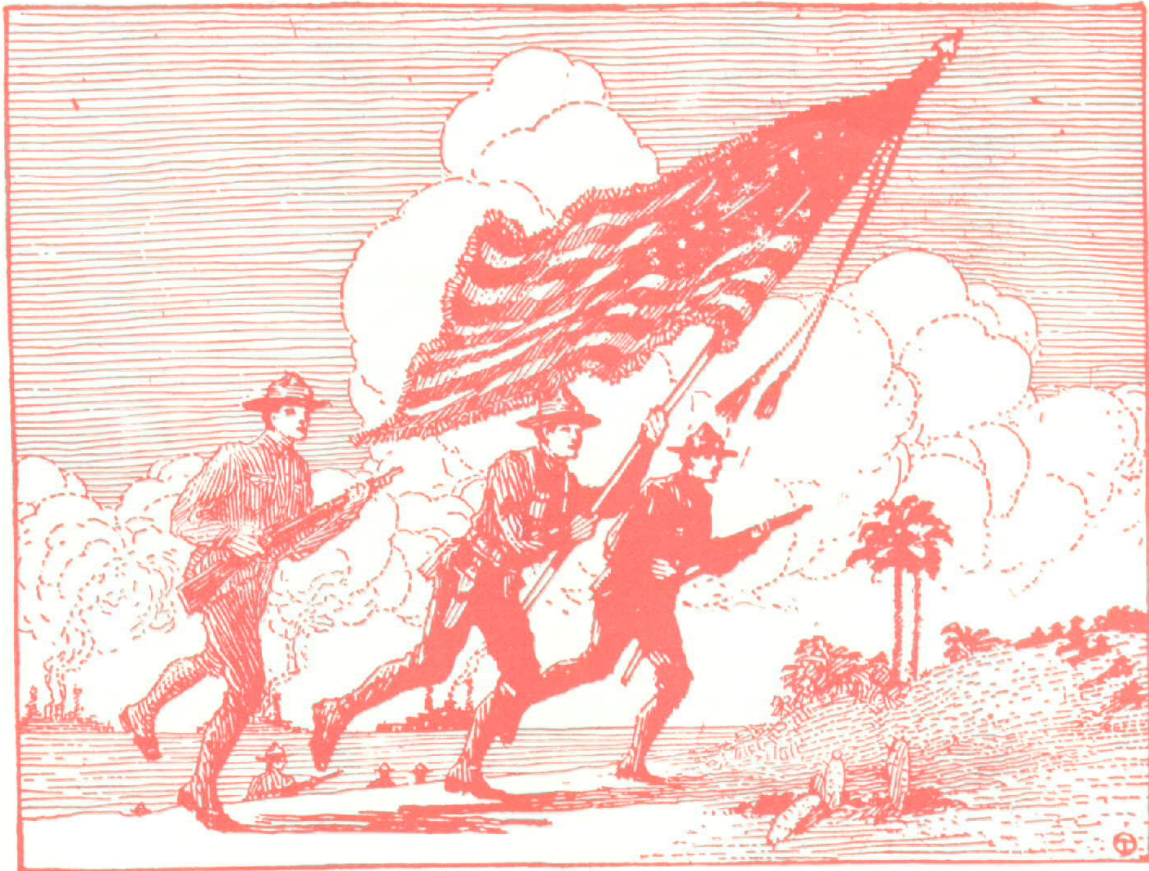
A DEVELOPMENTAL HISTORY OF THE U. S. MARINE CORPS

1900-1970



HISTORY AND MUSEUMS DIVISION
HEADQUARTERS, U. S. MARINE CORPS
WASHINGTON, D. C.

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A recruiting poster of era just before World War I which typifies the appeal of the Marine Corps. The illustration, artist unknown, has been used on the cover of this history.

Progress and Purpose:
A Developmental History
Of The
United States Marine Corps
1900-1970

By

Lieutenant Colonel Kenneth J. Clifford, USMCR



HISTORY AND MUSEUMS DIVISION
HEADQUARTERS
UNITED STATES MARINE CORPS
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FOREWORD

In this work the fighting record of the U.S. Marine Corps is not discussed but rather the inventiveness of those Marines who pioneered the amphibious role that would be played by the Corps in the 20th century.

Lieutenant Colonel Kenneth J. Clifford, the author, has been active in the Marine Corps Reserve for many years and served on active duty as an infantry platoon leader in Korea. More recently he has taken leave from his civilian pursuits of teaching social and political history at St. John's University in Jamaica, New York, to serve two years at the Historical Division of Headquarters Marine Corps and a year in Vietnam as an assistant to the Assistant Chief of Staff, G-1, III Marine Amphibious Force. He has a PhD in American studies from the University of London and is completing a book analyzing British and American amphibious (combined) operations, 1920-1945.

This work is dedicated to the proposition that Marines, past, present, and future, are experts in their craft, namely, amphibious warfare. However, amphibious warfare is a complex subject and this book does not pretend to be the last and definitive work on 20th century development of amphibious doctrine, tactics, equipment, and techniques. It should be considered an exploratory work, one that invites further research and study. Comments on the text, including citation of errors of both omission and commission, are solicited.



E. H. SIMMONS

Reviewed and approved:
1 March 1973.

Brigadier General, U.S. Marine Corps (Retired)
Director of Marine Corps History and Museums

PREFACE

Marine Corps contributions to the development of doctrine, tactics, and techniques of amphibious warfare have been cited in various Marine Corps histories for at least the past 70 years. It was the idea of Lieutenant General James M. Masters, Sr., then Commandant of Marine Corps Schools, 1966–1968, to restate these contributions and to cite some other contributions such as the doctrine of vertical envelopment and the use of helicopters in land warfare. My idea was to tell the story of these contributions without using a chronology of Marine “firsts.”

The book is generally divided into decades giving the status of the Marine Corps during the particular decade, coupled with a brief introduction into the political and economic climate of the times. This was of course important because it is those economic and political factors that directly affected the military situation.

In researching for the story, three unique things became apparent. The first was that in 1932, the Marine Corps Schools at Quantico chose to study a case history in disaster from World War I, the Gallipoli-Dardanelles Campaign of 1915–16. Rear Admiral L.E.H. Maund, Royal Navy, might have given the answer for Marine Corps Schools if it had been asked of them—Why study Gallipoli? Admiral Maund said of Gallipoli, “It had imagination, it had the promise of great strategic gains; while the reasons for its failure could easily be discerned and had to do with lack of technique, material and belief in this form of warfare—shortcomings that could all be overcome.” It is the “shortcomings” that Marine planners had overcome by the commencement of World War II. The second unique accomplishment that surfaced was that Marine Corps Schools had the first written doctrine on landing operations before it had suitable landing boats to carry out the doctrine. In like fashion, within 15 years after the “Tentative Landing Operations Manual” was published, the Marine Corps Schools had the first written doctrine on helicopter operations before actually possessing a helicopter.

As a by-product of researching this book, I discovered and used quite extensively the General Board Records of the United States Navy which apparently had seen little previous use by Marine researchers. My profound thanks go to Dr. Dean C. Allard, Head of the Navy Operational Archives Branch, Naval Historical Division and Mrs. Kathleen Lloyd who made these records available to me. My major source of information came from Breckinridge Library, Marine Corps Educational Center at Quantico. Mr. Dave Brown and Mrs. Lyvia Garsys of the library helped me through the maze of files there. The Historical Amphibious File at the library is a gold mine for amphibious warfare researchers and the cooperation of all personnel there is outstanding. The people at the libraries of the Office of the Chief of Military History of the Army and of the Navy Department were most helpful noting particularly Mr. W. Bart Greenwood and Mrs. Rita Halle of the Navy Library. Getting closer to home, Mrs. Clara Miller and Mrs. Frances Rubright of the History and Museums Division Library and Archives were exceptionally helpful. Sergeant Michael L. Gardiner and Lance Corporal Isaac C. Moon, Jr., both had a hand in typing various versions of the manuscript, but the lion's share of work on the final manuscript was done by Miss Kay P. Sue. The index was compiled and prepared for publication by Miss Cynthia J. Nash. The maps and sketches were prepared by Sergeants Kenneth W. White and Jerry L. Jakes. I am particularly indebted to Mr. Henry I. Shaw, Jr., Chief Historian of the History and Museums Division at Headquarters Marine Corps and Professor William H. Russell of the United States Naval Academy. I doubt if Winston Churchill could have gotten his works past their critical eyes without their strong recommendation and comments. In any event—they were right in all instances.

Historical accuracy is my responsibility alone and the very few unsolicited grains of personal

opinion are mine also. A debt of gratitude goes to those officers who read my drafts and gave me the benefit of their knowledge and invaluable experience. Unless otherwise noted, all illustrations are official Department of Defense (Marine Corps) photographs.

Lastly, I would like to dedicate this book to the Amphibious Warfare Presentation Team killed in the performance of their duty to their country and to their Corps in a plane crash in January 1968. In the final analysis, the members of the Presentation Team represented all Marines, past, present, and future. They were about their duty, telling the story of what the Marine Corps/Navy Team does best—conduct amphibious operations. As long as there are oceans and littoral areas of the world, there will always be a need to know the workings that makeup the amphibious operation.

A handwritten signature in black ink, reading "Kenneth J. Clifford". The signature is written in a cursive, flowing style with a large, prominent loop at the end of the last name.

KENNETH J. CLIFFORD

Lieutenant Colonel, U.S. Marine Corps Reserve

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CHAPTER I

BACKGROUND—1900—1920—COMING OF AGE

Mark Sullivan describes America on the first day of the new century thus:

The American of 1900, reading his paper on Monday morning, New Year's Day, or the Sunday paper of the day before, or almost any paper during the year, observed, with some uneasiness, that the head-lines continued to occupy themselves, as they had for a considerable time, with the Philippines, Cuba, Porto Rico, Guam, Aguinaldo, the Igorrotes; words which three years before had no more meaning to him than to stir old memories of something he had seen in his schoolboy biographies—you couldn't be confident how to pronounce the names . . . If the American, reading the papers of New Year's Day, 1900, was more than commonly reflective over the serious aspects of the news, it was only partly because the sporting page and the comic strip had not yet arrived to overbalance the American newspaper on the side of the merely diverting. It was due also to the presence in the newspapers of that day and in the sermons of the day before, of a spirit of solemnity, occasioned by the coming of a new year and, as some said, a new century.¹

The United States population at the start of this new century had an estimated 76,094,000 persons of whom there were nearly 39 million males.² Out of this then-vast population came the little known U.S. Marine Corps of 5,240 men and 174 officers including the Brigadier General (later Major General) Commandant Charles Heywood.

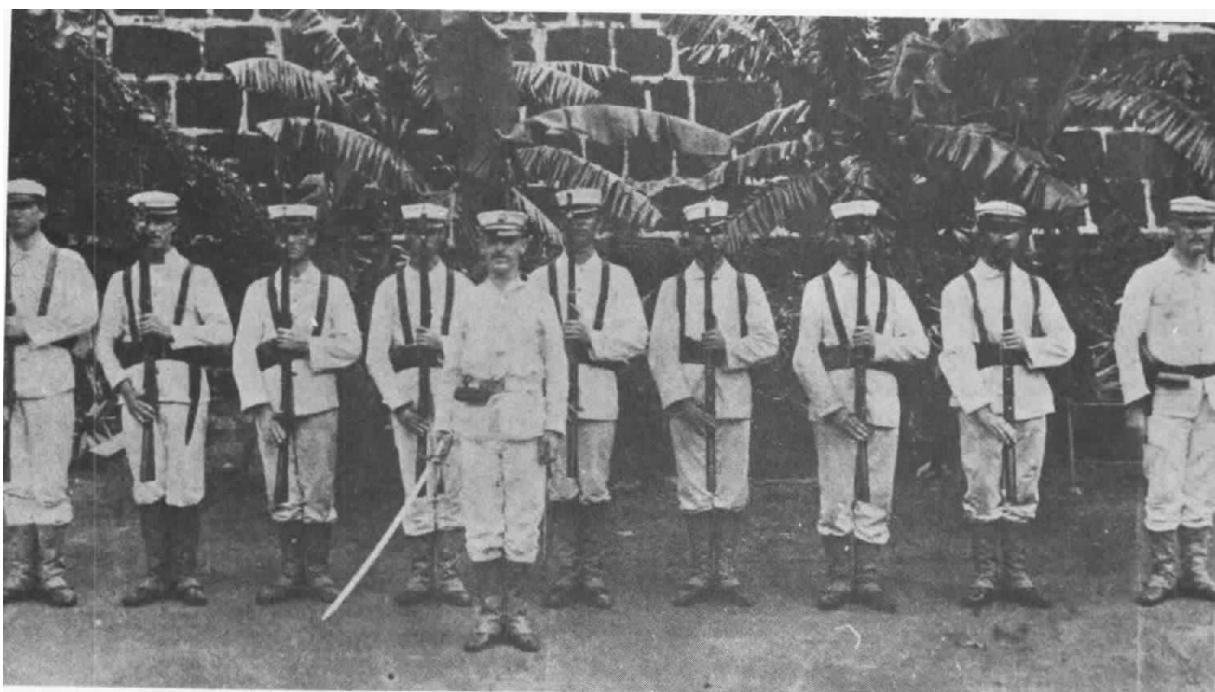
There was little difference, in the minds of the general public, between the Marine Corps and the Navy. The recent Spanish-American War had been a "Naval War" and the subsequent events of occupation and the Philippine insurrection were an Army show. There were no Marine national heroes, such as the Navy's "Hero of Manila Bay," Admiral George Dewey, or the Army's "Rough Rider," Teddy Roosevelt. The only group of people who perhaps knew the difference between an officer of Marines and an officer of the Navy line was the Washington social crowd. When it came to proper representation at the White House, the Navy didn't hesitate to make clear that



Major General Charles Heywood, 9th Commandant of the U.S. Marine Corps, 30 June 1891 to 2 October 1903. (USMC Photo #302066).

the Marines did not represent the Navy. The Marines were quite separate.

During the early years of the McKinley Administration, Colonel Theodore A. Bingham, an Army Engineer, had the position of Commissioner of Public Buildings and Grounds and acted as a kind of major-domo of the White House. Colonel Bingham had to select the President's two military aides, traditionally representing the two branches of the service. There had been no objection to the first assistant, an able army artillery officer. The fatal error was the choice of the Navy representative, Captain Charles L. McCawley. Captain McCawley was an admirable young man, witty



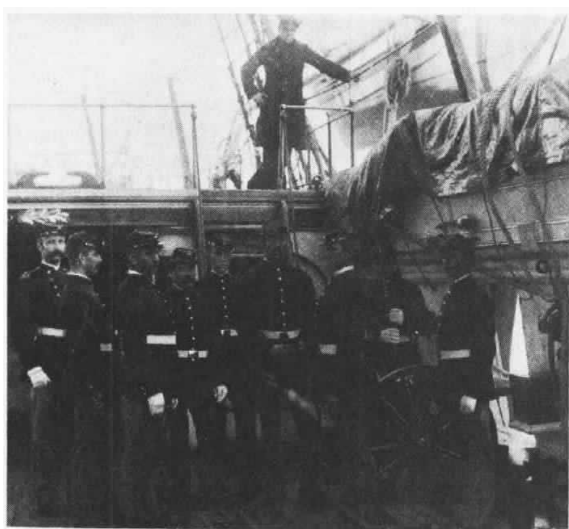
Lieutenant Dion Williams and a detachment from the USS Baltimore saluting Admiral Dewey on his visit to the Navy Yard, Cavite, Philippine Islands on 13 June 1898. (USMC Photo #4831).

and well-bred. The trouble was that he did not belong to the Navy proper. He was a captain of Marines.³ Navy circles buzzed with the news that officers of the line had been passed over at the Executive Mansion. The Navy Department was boiling with resentment. To allay the fears of some of the Navy officials,

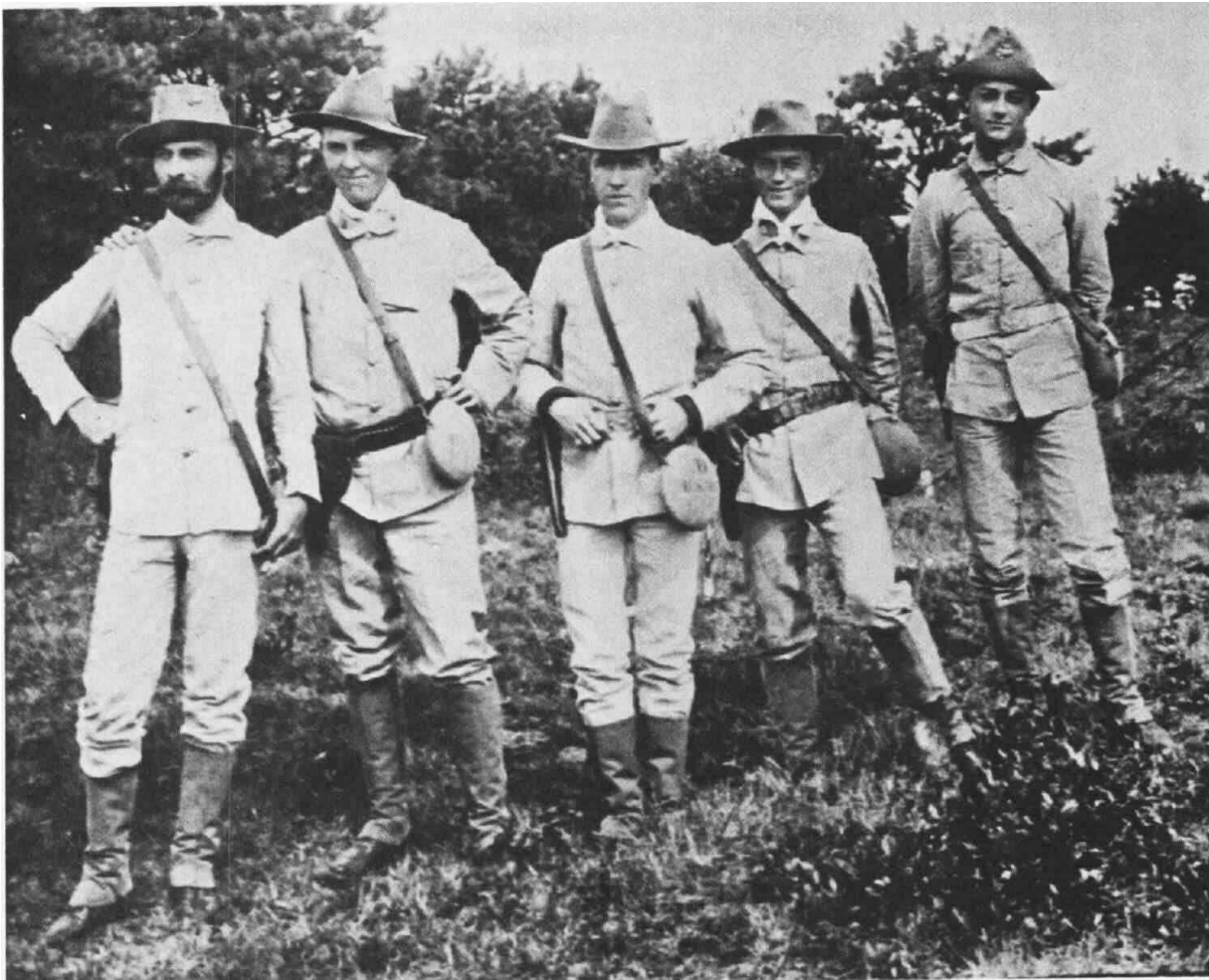
Secretary of the Navy John D. Long got the President's consent to augment the detail of aides with a naval officer. The grave crisis of Washington society was resolved and the Navy's feelings were saved.

Willis J. Abbot has written a history of the Marine Corps entitled *Soldiers of the Sea*, published in 1918. In the foreword of the book, it was noted that "until now one could search the public libraries almost in vain for works pertaining to the U.S. Marine Corps, as such, and Mr. Abbot has rendered a notable service."⁴ The fact is that this statement was not technically correct. There was in existence a second edition (1903) of Major Richard S. Collum's *History of the United States Marine Corps*. Though it was not a runaway best seller, it did provide, for those interested, the story of the Marine Corps.

The Marines did get some notoriety of sorts when the former Assistant Secretary of the Navy, Theodore Roosevelt, in his last year as President in 1908 caused the removal of Marines from naval vessels. Efforts to remove Marines from ships had been made by a group of naval officers from 1890-94, led by the Marine Corps antagonist, Captain William F. Fullam, USN. These early efforts were rejected



Marine gun crew on board the USS Alliance in 1888. (USMC Photo #515255).

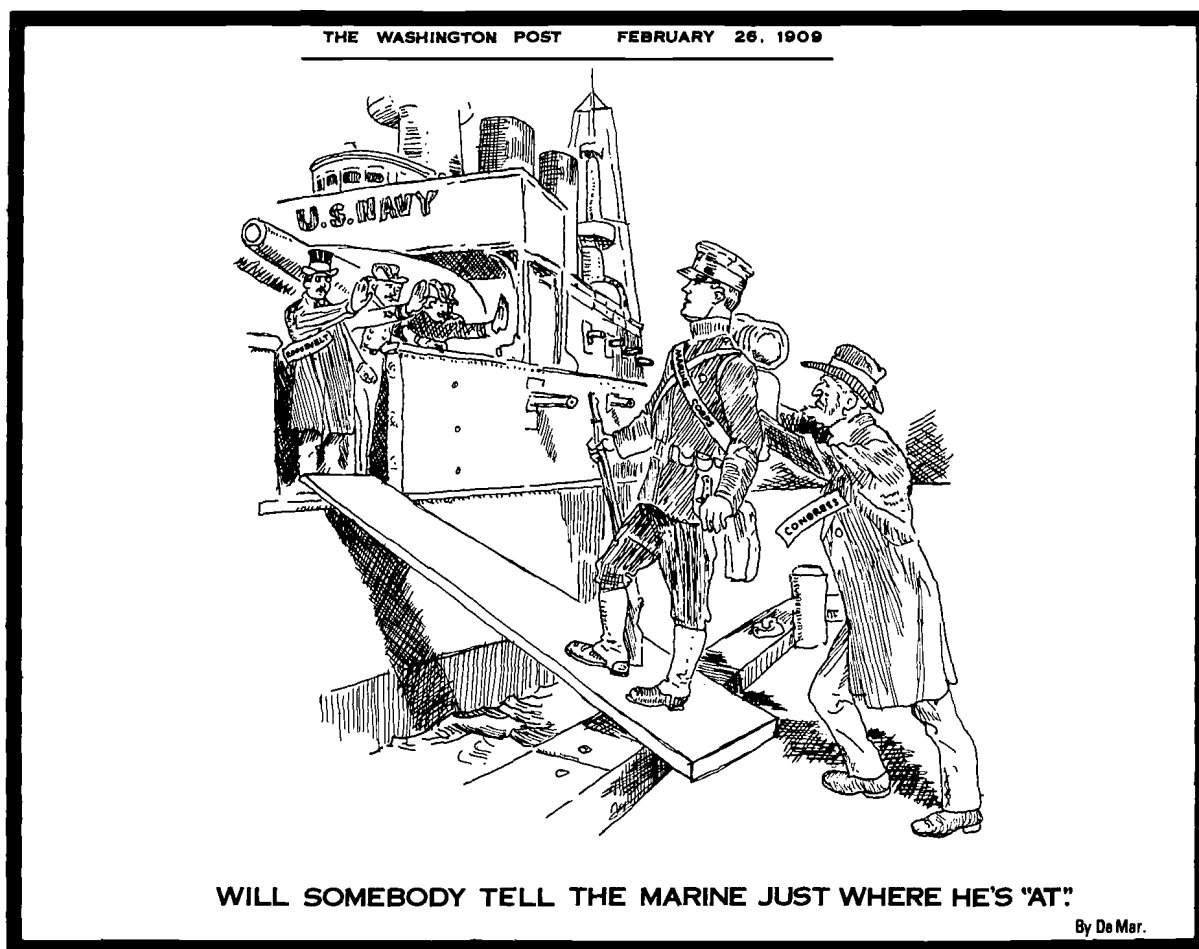


Group of officers, 1st Battalion of Marines (Huntington's), Navy Yard, Portsmouth, N.H. (Seavey's Island), in September 1898. Left to right: Lieutenants Lewis C. Lucas; Clarence L. A. Ingate; Melville J. Shaw; Newt H. Hall; and George C. Reid. (USMC Photo #515616).

by the Secretary of the Navy but were again brought up in 1908. This time the pleas fell on the sympathetic ears of the President who issued an Executive Order which defined the duties of the U.S. Marine Corps and specifically left out duty on board naval vessels.⁵ Not only were the Marines withdrawn from ships, but, to rub it in, the *Washington Post*, in a feature article, declared that the Army was to get the Marines by transfer to the Army infantry. The newspaper stated:

Mr. Roosevelt had not only reached this conclusion, but has taken preliminary steps toward the practical development of the plan. He already has conferred with officers of the general staff, and also with General Leonard Wood, who is known to be close to him in military matters. General Wood and the members of the general staff are formulating a scheme outlining the Presidential ideas.⁶

The Navy Department countered this rumor by submitting a detailed statement to the House Naval Affairs Committee. It was made clear that "It is of the utmost importance that the Marine Corps remain absolutely under the control of the Navy Department and all war plans thus far laid down provide for the close cooperation of the Marine Corps with the Navy, afloat and ashore."⁷ The President of the General Board, Admiral Dewey, in a letter to the House Naval Affairs Committee, reiterated the importance of Marines within the Department of the Navy because of the need for an expeditionary force to assist the fleet in seizing and holding advanced bases. His high regard for Marines stemmed back to his Manila Bay victory when he asserted: "If there had been 5,000 Marines under my command



Sketched reproduction of a cartoon dealing with the Marines on Navy ships controversy. (Taken from USMC Photo #528702).

at Manila Bay, the city would have surrendered to me on May 1, 1898, and could have been properly garrisoned. The Filipinos would have received us with open arms, and there would have been no insurrection.”⁸

It is interesting to note that this friend of the Marine Corps, Admiral Dewey, was in favor of the President's Executive Order 969, but for different reasons; none were sinister. He said that “while the marines will no longer form parts of the crews of the ships, the navy is to have the services of this fine corps for the important and necessary duties laid down in that order.”⁹ Outwardly, it would appear that it was a family fight between the Navy and the Marine Corps. But of course it was not. It became quite political because it involved the actions of the President of the United States and his use of the Executive Order. The ramifications of the use of this

order not only affected the Navy and Marine Corps but touched on prerogatives of Congress.

The right to issue such an order without special provision of law was assumed on the ground that the President as Commander in Chief of the Army and Navy could dispose of the naval forces according to his judgment. In a vote two months later, the Senate would dispel this view.

The controversy thus became a matter of principle involving Presidential powers vis-a-vis Congressional prerogatives. Some strong Congressional leaders upheld the President on the basis of separation of powers. Among the Senate luminaries supporting the President were William E. Borah, Robert M. LaFollette, and Henry Cabot Lodge.

The newspapers had to reorient the people who followed the controversy from November

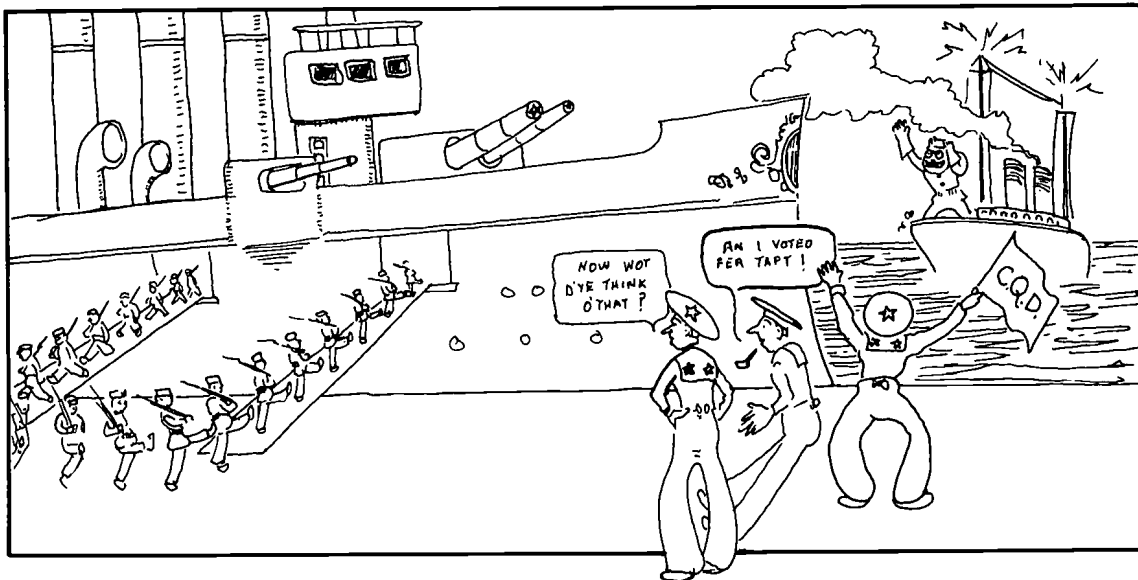
1908 to March 1909. They had to identify exactly what Marines were and what they did. The public was learning, in popular newspaper fashion, that the Marines had been involved in the "Naval War" with Spain, that Marines served on most naval vessels, including the *Maine*, and thus participated in all the naval battles of the war. They learned that Marines were with Dewey at Manila Bay and Sampson at Santiago. They learned that in addition to Teddy Roosevelt's "Rough Riders," there were Marines in Cuba who fought the Spaniards to capture Guantanamo Bay. They further learned that in addition to the U.S. Army in the Philippines and its occupation force, the Marines had, at the end of 1901, over 2,000 men in the Philippines. They became aware that Marines fought alongside of the Army against the insurrectionists. The

public was reminded of Marines like Major Littleton W. T. Waller and places like Samar.

The intricate matter of restoring Marines to naval vessels was resolved in March 1909. Senator Eugene C. Hale, Chairman of the Senate Committee on Naval Affairs, tacked on to the Naval Appropriations Bill a proviso that eight percent of the enlisted men on board battleships be Marines.¹⁰ Notwithstanding the spirited defense of the President's action, the Senate, by a vote of 51 to 12, adopted the amendment restoring the Marine Corps to the ships of the Navy. Those voting in the negative were all Republicans and members of the President's party, the majority party.¹¹ In the waning hours of his administration, in fact the day before he left office, President Roosevelt struck his colors, but only halfway. On 3 March 1909, he issued orders restoring the

THE DAILY EVENING TELEGRAPH - PHILADELPHIA, TUESDAY, MARCH 30, 1909

TEDDY HEARS BY WIRELESS - By ART N. EDROP.



TAFT PUTS MARINES BACK ON THE QUARTER DECK

Sketched reproduction of a cartoon dealing with the return of Marines to Navy ships. (Taken from USMC Photo #528701).

Marines to ships, but placing them under the orders of the captains of the vessels on which they were to serve.* The technicality was that under the old order of things Marines had had specific duties. One of these was to maintain certain guns of the secondary battery. Now the President's order placing them under the direction of the ship's captain made it possible to assign the Marines any sort of duty on board ship and conceivably remove them from all guns.

The General Board of the Navy could envision difficulties arising out of this portion of the order and consequently recommended to the new Secretary of the Navy, George L. von Meyer, and the new President, William Howard Taft, that it be changed. So it was that on 26 March 1909, three weeks after Mr. Roosevelt had left office and sailed to Africa for a lion hunt, President Taft issued a memorandum from the White House:

Upon the recommendation of the General Board it was decided at the Cabinet meeting today that the amendments to the regulations adopted on 3 March in regard to the Marines should be revoked and the old regulations should be restored.¹²

The Marine Corps and friends of the Marine Corps on the Naval Appropriations Committee had won out. Benjamin Standish Baker, a popular correspondent for the *Boston Transcript*, had written:

... it is common to hear officers both of the army and of the line of the navy admit that when it comes to being in constant and effective touch with members of Congress, and thus securing desired legislation and favors, the Marine Corps is easily leader.¹³

The point is that the controversy in 1908 was a blessing in disguise for the Marine Corps if not Theodore Roosevelt. If the action of the President diminished for the time being the duties of the Marine Corps by taking Marines off naval vessels, the resulting publicity reminded the American public, including the Congress, that there was such an organization called the Marine Corps which definitely shared the tasks of defense of the United States with the Army and Navy.

*It should be recalled that inauguration day for the incoming President of the United States was 4 March and that not until the 20th Amendment was ratified in 1933 was it changed to 20 January.

The Nature of the General Board

"And doth not a meeting like this make amends"

Thomas Moore (*Irish Melodies*)

... A general board has been made, of which the Admiral is president, and the function of which is to consider questions relating to the efficient preparation of the fleet in case of war and for the naval defense of the coast.

Thus the Secretary of the Navy, Mr. John D. Long, reported to the President in his annual report in November 1900. This routine mention of the General Board could not possibly indicate the great ramifications that this board would have on the defense structure of the nation, Navy, and Marine Corps in the succeeding four decades. There was no question that the need for this type of board existed, the question was what role it should take—advisory or executive in nature.

Prior to the Spanish American War, the United States had no central advisory authority for determining naval policy. During the war, the Secretary of Navy appointed a Naval War Board, sometimes called the Strategy Board, to collect military information, prepare strategic plans, and generally advise him on strategy, policy, and the conduct of the war. The most distinguished member of this board was Rear Admiral Alfred T. Mahan. With the close of the war, the War Board quietly went out of existence. The success with which this rudimentary general staff functioned tended to crystallize sentiment within the Navy for the establishment of a more permanent organization of comparable character. The fact that after the war the Navy's increased responsibilities extended to opposite sides of the globe made careful planning by a body similar to a naval general staff an urgent necessity.

One of the most progressive officers in the Navy, Captain Henry C. Taylor, urged the Secretary of the Navy to approve a type of general staff for the efficiency of the Navy. Among Taylor's more influential supporters was Admiral Stephen B. Luce, the elder statesman of the Navy, who was then living in retirement at Newport, Rhode Island.¹⁴ In addition, Taylor had the support of the current hero, Admiral George Dewey, who was a strong supporter of some sort of central authority. Dewey argued that "we had been making our appropriations without a proper regard for their expenditures to the definite end of developing a fighting force as an efficient

whole; we had been building ships without regard to homogeneity. . . ." ¹⁵ Perhaps it was the times and the fear of a Prussian-type general staff that had emerged in the Kaiser's Germany that frightened people. There were misgivings in Congress and elsewhere by those who feared that a full-fledged general staff, with powers of command, would usurp the authority of the civilian secretary. As a compromise, Secretary Long established the General Board of the Navy with no executive functions but merely with an advisory capacity.

A major factor in the immediate acceptance of the board on the part of the rank and file of the Navy and its prestige with the public at large was the presidency of George Dewey, Admiral of the Navy. His place in naval history was already won; his character was above reproach; his professional attainments were of the highest. ¹⁶ The other members of the board were the President of the Naval War College, the Chief of the Bureau of Navigation, and the Chief of the Office of Naval Intelligence. Others were ordered to serve with the body as their assistance was desired. ¹⁷

On 29 March 1900, Colonel George C. Reid, USMC, Adjutant and Inspector of the Marine Corps, was appointed by the Secretary of Navy as a member of the board. ¹⁸ Thus the Marine Corps initially had a member on the General Board. As its first order of business, Secretary Long ordered the new board to consider campaign plans for different war situations in the Philippines and their vicinity. As it turned out the main peacetime function of the board would be that of making recommendations for the annual shipbuilding program. Along this line, a board member, Admiral Henry C. Taylor, defined the board's function: "Not to say what force we should have but to prepare for war whatever force Congress should give us." ¹⁹ The General Board of the Navy, while an advisory body to the Secretary of Navy, became in reality the spokesman for him. During the first 20 years of this century there were four administrations and eight Secretaries of the Navy. With the exceptions of George von Meyer (1909-13) and Josephus Daniels (1913-21), the Navy's Secretaries served on the average of two years. It would be quite understandable that the Secretary of the Navy would rely quite heavily on the General Board. The board was made up of the most distinguished and, hopefully,

the most intelligent officers of the Navy. Until his death in 1914, the President of the Board was Admiral Dewey. The great experience and continuity of the officers of the board would be hard to ignore, if one were inclined to do so. However, most Secretaries of the Navy were pleasant people who were politically rewarded and who wanted to do a good job, quietly. They certainly did not want to overshadow their Commander in Chief. In any event, Presidents such as Theodore Roosevelt, William Howard Taft, and Woodrow Wilson would be somewhat of a challenge to overshadow.

The General Board, therefore, studied a problem, had hearings, and then submitted its report to the Secretary of the Navy with recommendations. Rarely, if ever, during this period, did the Secretary of the Navy fail to approve the General Board recommendations. With the very nature of the structure of the Navy Department and the evolution of the powers of the General Board, it became apparent that the Marine Corps could do very little on its own without the approval of the General Board. Considering the times, there may not have been anything inherently wrong with the situation.

The Marine Corps did not suffer in any way under this arrangement. On the contrary, the General Board in most matters consulted the Commandant when considering advanced base deployments, increases in personnel strength, and the like. The board, however, did make its own decisions after hearing what the Commandant had to say. It was a unilateral decision—the General Board's. The board was quite vigilant in matters that would endanger the loss of the Marine Corps to the Army and was always favorably disposed to increasing the Marine Corps when this could be justified. So it was, in the early years, that the all-powerful General Board through the person of the Secretary of the Navy made decisions on deployment, organization, training, strength, and location of facilities. It was fortunate that the Marine Corps had a sympathetic General Board of the Navy in the early years of this century. The only way the board's decisions could be overridden was by the necessity of assigning Marines in emergency expeditionary service. A crisis in Cuba or Haiti, etc., predisposed that the Marine Corps would be needed. It was the President and Secretary of State who made the decisions, the board simply and will-



Marines of the Advanced Base Brigade demonstrate the operation of the Colt machine gun at Philadelphia in October 1913. (USMC Photo #517216).

ingly assented. The Marine Corps was ordered and the Marine Corps responded. In these decisions the role of the General Board was minimal.

Advanced Base Force—The Reason for Existence*

If one were interested in ascertaining what specifically are the responsibilities of the Marine Corps today, a reading of the National Security Act of 1947, as amended, would give the answers. To use terms such as "responsibilities," "missions," and "roles" when discussing the Marine Corps 70 years ago would be incorrect. The designation of elements of the Marine Corps as the Advanced Base Force came about not in order to assign a "responsibility" or a "mission" to the Corps, but rather to solve a controversy within the Navy Department. The controversy was over the question of to whom should the assault mission be assigned,

*There is inconsistency in the correspondence of the General Board, Secretary of Navy, and the CMC relative to the use of the term *Advanced* or *Advance* as it pertains to Bases, Forces, and the like. It is intended that *Advanced* be used throughout this text.

and it would last four years.** On the one side, some naval officers wanted to keep the Navy line in exclusive control of landing operations. Other naval officers simply believed that seamen were too busy for landing parties, that they must concentrate on working the ship and its guns. They could not be spared for landing operations. The controversy focused attention on the landing force issue and thoughtful men concluded that the Marine Corps could fill the bill. By the time of the Spanish-American War those thoughtful men were vindicated when, in the battle for Guantanamo in Cuba, a Marine battalion under Marine command had seized the advanced base that conferred victory. The Guantanamo precedent of successfully seizing advanced bases was strengthened by similar experience in the Philippines and China.²⁰ A precedent of great value to the Marine Corps was made and the evolutionary assignment of the "assault mission" fell to the Marine Corps. After bases were secured, the Marine Corps would still be needed in defense and development of these bases. Its authority for this mission came from the General Board immediately after it was organized, April 1900.

At the first meeting of the General Board, Colonel George C. Reid, member of the board, was requested to:

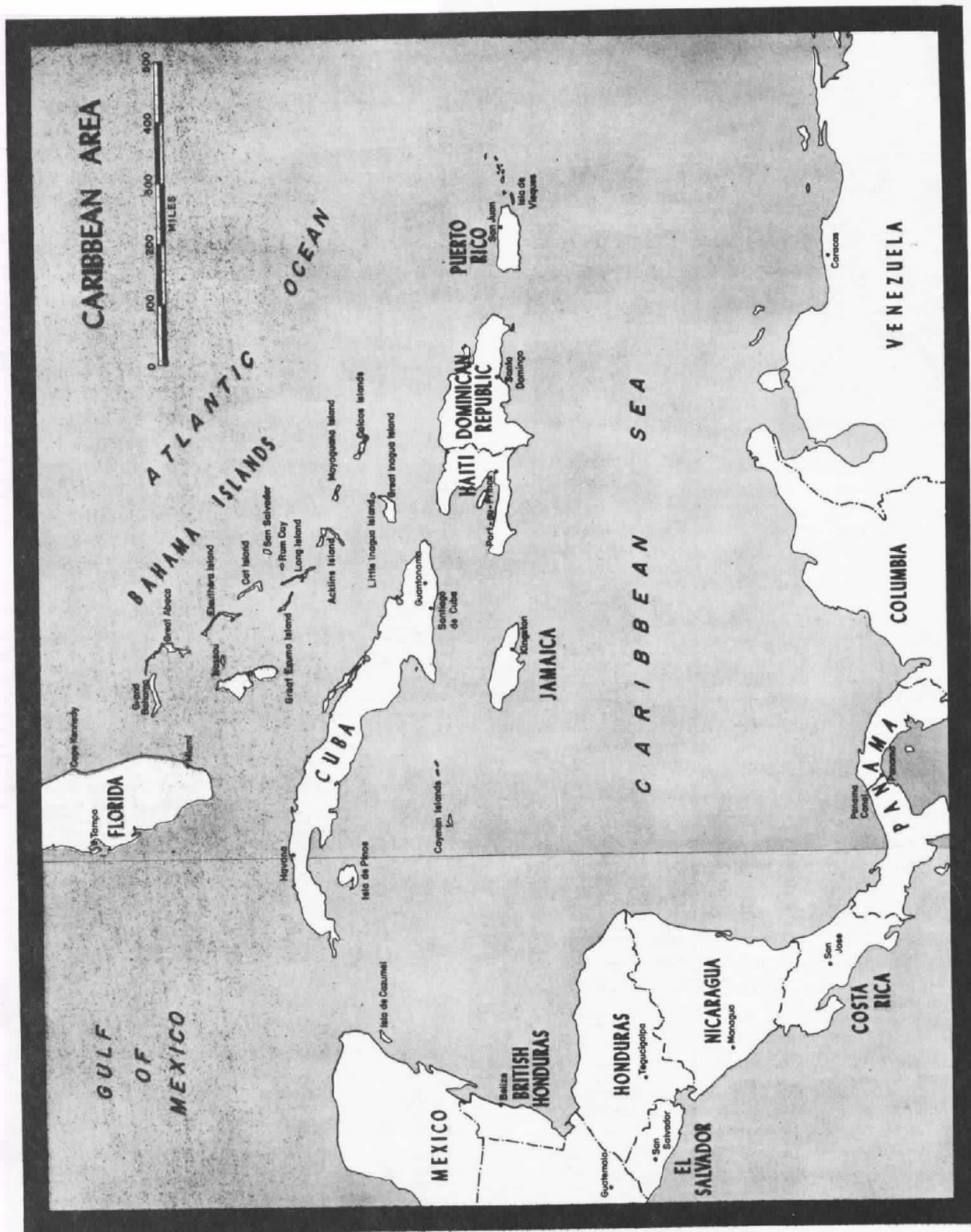
... put before it the number and organization of a force of Marines sufficient to hold each of three positions at Culebra in the West Indies, Samana (in Santo Domingo), and Guantanamo in Cuba; composition of this force as to infantry and artillery to maintain a position against cruisers or naval brigades landing to attack it.²¹

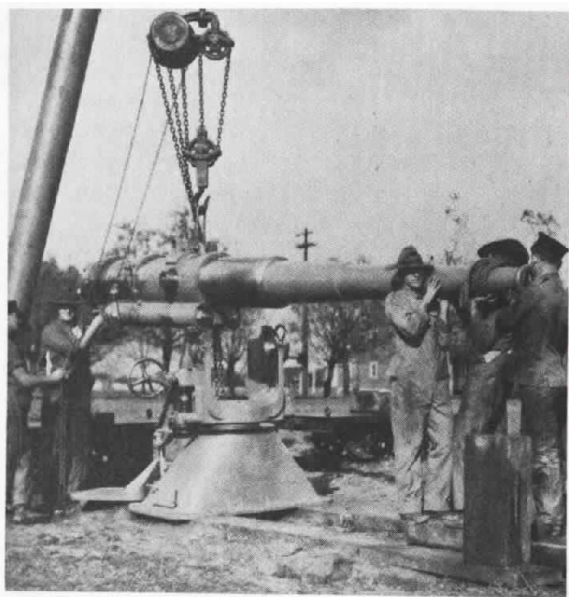
In addition, the General Board recommended to the Secretary of Navy that:

... two transports of capacity sufficient to carry 500 marines each with 2 months' commissary and Quartermaster stores etc. be made ready in the event of a naval campaign in Asiatic waters and that they be moved to an advance base near the scene of hostilities.²²

The General Board specifically recommended that the Marines would be "best adapted and most available for immediate and sudden call "for use in defending any advanced base."²³ The Army's role was considered at this time, but:

**Professor William Russell covers this controversy eminently well in "The Genesis of FMF Doctrine: 1789-1899," Part I, April 1951, Part II, May 1951, Part III, June 1951, and Part IV, July 1951 in the *Marine Corps Gazette* v. 35, nos. 4, 5, 6, and 7.





Marines of the Advanced Base Brigade practice assembling pedestal-mounted naval guns at Philadelphia in October 1913. (USMC Photo #516704).

... in the opinion of the General Board the requirements of the naval establishment of the United States include a military organization of sufficient strength in numbers and efficiency, to enable the Navy to meet all demands upon it for services within its own sphere of operations, without dependence upon the cooperation of the Army for troops and military supplies, for such a force of the Army may not always be available.²⁴

With the "who" completed, the "how" and "where" phase of the advanced base situation got underway. The General Board requested the Secretary of Navy to direct the Brigadier General Commandant to organize immediately four companies of 104 enlisted men each, and "have provided for such battalion and stored at Philadelphia, ready for instant use, a complete equipment for expeditionary field service for such force."²⁵ The General Board further recommended that officers and enlisted men of this battalion be thoroughly trained and instructed in the following areas:

- (a) The construction of field fortifications, gun emplacements, gun platforms and magazines;
- (b) The transportation of guns of less than 8-inch caliber from ship to point of emplacement and the mounting of same;
- (c) The construction and operating of field telegraph and telephone lines, signal, searchlight and range-finder stations;
- (d) The planting of mines, countermining and the operating of torpedos for harbor defense.

The board also recommended that the companies composing such a battalion be kept organized and maintained at their full strength, ready, in all respects, for immediate service.²⁶

The request by the General Board to the Secretary of the Navy to direct the Marine Corps to organize, train, and equip a unit to accomplish a specific task was a first of its kind. Colonel Reid, as member of the General Board and the Brigadier General Commandant, Charles Heywood, set about forming a fixed defense battalion to fulfill the requirements set by the Secretary of Navy. To build up the battalion of four companies of approximately 104 men per company, Marines were transferred from Seavey's Island (Portsmouth, New Hampshire), League Island (Philadelphia Navy Yard), and Port Royal, South Carolina (Parris Island, South Carolina) to the battalion. The battalion was physically located in two places, Newport, Rhode Island, and Annapolis, Maryland. Instruction in the subjects outlined above began at these two posts by July 1902.

Before the sites of Newport and Annapolis were chosen for this advanced base schooling, the Commandant was requested to comment on the best site for such instruction. He said that:

... of all the stations, Port Royal was the best station for such instruction as it is nearly surrounded by water—and being removed from the pernicious influences of a large city, in consequence of which the men will be more apt to be interested in this work ...²⁷

Future Marine Corps "boots," at what was later to become Parris Island Recruit Depot, would partly agree with the Commandant that it was indeed "removed from the pernicious influences of a large city." Instruction in advanced base work was continued until September 1902 when the battalion, under the command of Colonel Percival C. Pope, was assembled at Norfolk, Virginia. In October, another company, under the command of Captain Smedley D. Butler, joined the battalion increasing its total strength to 19 officers and 522 enlisted men.²⁸ The battalion sailed for Culebra in November on board the USS *Prairie* where practical application was demonstrated in developing a plan for the defense of that island. The Marines participated in extensive advanced base exercises with the fleet until January 1903. It was generally agreed that Marines had done a good job in defending Culebra. The next year, 1904, similar work in

the defense of Grande Island in Subic Bay, Philippines, was accomplished.²⁹

While there was no need to convince naval officials, the Russo-Japanese War furnished further evidence of the value of advanced bases, particularly the Japanese naval advanced base established in the Elliot Islands.* The occupation of the Elliot Islands was of inestimable value to Japan in operations against the Russians.

The question of possible and probable advanced base sites was under constant review by the General Board. All the war plans made by the General Board required advanced bases in addition to the permanent base, Guantanamo in the Caribbean and the advanced base, Grande Island, in the Philippines. The Marine Corps dictum, "it depends on the situation," was all too true in planning for advanced bases. The General Board felt that the precise location, defense, and time of occupation would depend upon the circumstances of the particular campaign. International "flaps" did tend to narrow speculation as to the site of possible future campaigns.

American relations with Japan in 1906 and 1907 became strained when the San Francisco School Board decided to segregate Asians from other students and designated a special "Oriental Public School" for all Chinese, Japanese,

and Korean students. Flushed with victories over Russia, "the Japanese people were deeply incensed by such measures. Their press responded immediately to the school board's action with protests that ranged from rage to hurt incredulity."³⁰ President Theodore Roosevelt, in February 1907, called San Francisco's entire school board, headed by:

... a bassoon-playing mayor under indictment for graft, to come to the White House. The President finally broke the deadlock, but not until he waved his Big Stick and bared his big teeth. The Californians were persuaded to repeal the offensive school order and to accept what came to be known as 'the Gentlemen's Agreement.' This secret understanding was worked out, during 1907-08, by an exchange of diplomatic notes between Washington and Tokyo. The Japanese, on their part, agreed to stop the flow of coolies to the mainland of the United States by refusing to issue passports. The Californians, their fears largely allayed, henceforth slept easier.³¹

It is interesting to note that during the period of the American and Japanese war scare, the American Naval Attaché in Berlin reported to the Navy Department:

... German opinion would undoubtedly favor the United States in a Japanese-American conflict. But he added the discomfiting bit of intelligence that the British and German admiralities agreed Japan would probably win.³²

In spite of the talk of war, the Navy, through its spokesman Admiral Dewey, President of the General Board, stated "that he did not expect serious trouble with Japan for a very long



Marines of the Advanced Base Brigade work with mobile searchlights in Philadelphia in October 1913. (USMC Photo #516701).



STAFF AND CLASS, SCHOOL OF APPLICATION, ANNAPOLIS, MD., 1906.

Officers of the Staff, seated left to right: First Lieutenant W. G. Fay, Captain D. P. Hall, Captain J. H. Russell, Major F. J. Moses, Captain George C. Thorpe, Captain Harold C. Reisinger. Officers of the class, standing left to right: Second Lieutenants W. W. Buckley, Julian P. Wilcox, Benjamin B. Gossett, H. B. Pratt, Bennet Puryear, Jr., Robert L. Denig, Logan Tucker, Henry S. Greene, Randolph Coyle, C. F. B. Price, William C. Wise, Jr., Charles S. McReynolds.

Many future senior officers of the Marine Corps, including the 16th Commandant, John H. Russell, Jr., are included in this portrait, (USMC Photo #514699).

time.”³³ Some other members of the General Board believed there was, in the realm of possibility, a chance of future hostilities with Japan. Consequently, in January 1907, the Army and Navy decided to undertake joint studies along those lines for a possible war with Japan. The studies were inaugurated at the suggestion of Major General J. Franklin Bell, the Army Chief of Staff.

On a lower level, Marines were ordered to commence extensive construction of temporary defenses at Olongapo in the Philippines. Twenty 6-inch, four 4.7-inch, four 4-inch, and sixteen 6-pounder guns were mounted in 10 weeks. “The work amounted to the temporary defense of a permanent base for which permanent fortifications had not been provided.”³⁴ The situation at Olongapo resulted in some confusion as to the character and

purpose of a naval advanced base. The Philippine construction brought up the question of the cooperation of the Army in such work.³⁵ During the protracted consideration of the matter in 1908 and 1909, the strength of the Marine Corps was materially increased by Congress “so that there was a sufficient force of Marines to meet the probable demands of the Navy in this respect, and the cooperation of the Army received no further considerations.”³⁶

In 1907 and again in 1909, the General Board urgently presented to the Navy Department the need for consolidating equipment with regard to advanced bases. The Secretary of Navy approved the board recommendations that the materiel on the Atlantic coast be assembled at Philadelphia and that for the advanced base outfits in the Pacific be assembled at Olongapo.³⁷ The Commandant of

the Marine Corps (CMC)* was given the responsibility for the custody and care of all advanced base material. In addition, he was to "take the necessary steps to instruct the officers and men under your command in the use of this material."³⁸

On 18 April 1910, Major General Commandant George F. Elliott submitted to the Secretary of Navy a copy of the proposed course of instruction for an advanced base school to be established at New London, Connecticut. While it was to be primarily an officers' school, 40 enlisted men were assigned to the first class of instruction which began in July 1910. In addition to the advanced base school, two Marine officers were assigned to the Army School for Submarine Defenses at Fort Monroe, Virginia. This was necessary because the Navy had planned to use Army mines, pending the acceptance of a new naval mine. In addition, two other Marine officers were detailed to attend the Army Signal School at Fort Leavenworth, Kansas, "in order that they may acquire a complete knowledge of wireless telegraphy and the construction and operation of field telegraph and telephone lines."³⁹

In a memorandum to the prospective officer students of the Advanced Base School, the Commandant declared:

The establishment of a school for the purpose of instructing and training marine officers along certain well-defined lines of work, pertaining to the attack and defense of advanced bases, presupposes a good working knowledge of the elementary professional subjects and is in the nature of a post-graduate course.

In order to obtain the best results, the instruction in such a course must be both theoretical and practical, systematic and progressive. The military subjects covered in the defense of a base are many; and, while theoretical instruction in these subjects is essential, the training or practical work is none the less important. The subjects are so varied and their scope so comprehensive that it is considered a year should, if possible, be devoted to the course.

In general terms, the defense of an advanced base may be divided into

- (1) The Gun Defense
- (2) The Mobile Defense
- (3) The Mine Defense
- (4) General Governing Considerations⁴⁰

The Commandant envisioned the Gun Defense instruction to include naval ordnance; gunnery; explosives and projectiles; fortifications, as relating to defense of the guns; and

communications. Instruction in Mobile Defense was to encompass construction of more or less permanent field fortifications, obstacles and demolitions, map reading, and field artillery. The Commandant made note that when studying field artillery, consideration would be given to "the development and use of this arm in connection with infantry and for both direct and indirect fire."⁴¹ It is easy to look back and put labels on things. But in the meaning of the quotation above, the Commandant's instruction in a sense paved the way for the concept of combined arms within the Marine Corps. In studying Mine Defense, all types of mines, torpedoes, and obstructions were to be considered. In examining General Considerations, the Commandant recommended a study of the organization, supply, and movement of Marines assigned to advanced base work be made. He believed that other considerations involved the study of bases, their necessity and use, and historical studies that would be useful and applicable to advanced base work and the making and use of war plans. The textbook material, where applicable, was supplied by the Navy and Army. As an example, the Navy's Bureau of Ordnance supplied the book *High Explosives and Mines* and the Army donated *Field Artillery Drill Regulations*. The Marine Corps' Major Dion Williams contributed an original booklet *Instructions for the Reconnaissance of Bays, Harbors And Adjacent Country*.^{*} Practical work formed a large part of the course involving assembling and dismounting of guns, construction of field works, and the like. The location of the school at New London was not entirely suitable and the next year, 1911, the school was removed to Philadelphia.⁴² The school was successful although interrupted during the subsequent years by calls to expeditionary service in Nicaragua, Cuba, and Mexico. The Commandant had responsibility for maintenance, readiness, and training of the Advanced Base Force. Likewise, the General Board had the responsibility for continual study of the feasibility of advanced base locations and the make up of advanced base outfits.

Late in 1909, as the General Board began serious consideration of the advanced base

^{*}Commandant of the Marine Corps has been used throughout the text for uniformity, but the more common title prior to World War II was Major General Commandant.

^{*}First published in 1905 by direction of the President of the Naval War College. A second revised edition was published in 1917 by the Government Printing Office under the direction of the Secretary of the Navy. Copy at Historical Division, Headquarters, U.S. Marine Corps.



Marines preparing to embark at Philadelphia for duty in Nicaragua, August 1912. (USMC Photo #516235).

problem, three men, destined to play an important part in the evolution of the Advanced Base Force, had written papers, several weeks apart, that were ultimately forwarded to the General Board, all dealing with advanced bases. Major Dion Williams, who as early as June 1902 had written an article about the defense of naval stations⁴³ while assigned to the Office of Naval Intelligence, submitted a report dated 2 November 1909: "Report on Men, Material & Drills Required for Establishing a Naval Advance Base."⁴⁴ Commander William L. Rodgers, USN, then the Naval War College representative at the Army War College, submitted a report dated 20 November 1909, entitled "Advanced Bases."⁴⁵ Major John H. Russell, a student at the Naval War College, submitted a study, "General Principles Governing the Selection and Establishment of Advanced Bases and the Composition of an Advanced Base Outfit," and an additional concurrent report, "Additional Notes on Field Work Construction for Advanced Bases."⁴⁶ Perhaps writing ability had nothing to do with it, but in any event, this Major Russell later became the 16th Commandant of the Marine Corps. Also about the same time, Lieutenant Colonel Eli K. Cole, after installing the advanced base material at Subic Bay in the Philippines, was ordered to the

Army War College. While there he wrote a study entitled, "Outfit Necessary for Seizure and Fortifications of Positions by a Small Expeditionary Force."⁴⁷

If the Marine and Navy contributions were not enough, in the January-February 1911 issue of the *Journal of United States Artillery* was an article by a "Colonel Martin—an Ex-Confederate Officer" entitled "The Selection and Defense of Naval Bases."⁴⁸ This article was brought to the attention of Admiral Dewey, President of the General Board. Admiral Dewey wanted to know the true identity of "Colonel Martin" and wrote to the editor of the *Journal* accordingly. The Manager and Editor of the *Journal*, Major T. W. Winston, replied to the Admiral that the author of the article was Captain R. E. Wyllie, Coast Artillery Corps, presently stationed at Fort Hancock, N.J.⁴⁹ Major Winston explained that Wyllie's assumption of the *nom-de-plume* was merely to get an impersonal discussion of the merits of the arguments which he advanced. Major Winston was elated to know that someone on the General Board read the *Journal* and offered to send a copy of the *Journal* regularly with "our compliments." Two days later, the Secretary of the General Board wrote to say that he would be glad to be added to the mailing list. It would seem that there was a pat-on-the-back for Captain Wyllie of the Army, but not so. Admiral Dewey forwarded the article to the Secretary of the Navy and said that:

... in the opinion of the General Board, this article is very ably written, and sets forth the writer's conception of the subject in an exceedingly clear and pleasant style. The views expressed by "Col Martin" are not at all novel, however, and have often been expressed by naval officers in the discussions by the general board and the Naval War College.⁵⁰

Captain Wyllie would probably have agreed in the dictum—you win some and lose some!

To round out the articles on the subject of the various aspects of advanced bases, Major Henry C. Davis, wrote an article "Advance Base Training" for the March 1911 issue of the *U.S. Naval Institute Proceedings*. Lieutenant Colonel L. C. Lucas, wrote a report for the General Board entitled "Artillery Armament of Advanced Base Regiment," dated about 1 July 1913. Captain H. A. Knapp, USN, delivered a lecture and paper on the "International Law in its Relation to Advance Bases" to the Naval War College on 29 May 1915. It

would seem that there was enough written on the subject of advanced bases at the time but there were many questions still unanswered. The very basic question was "What number of men is sufficient for the defense of an advanced base?" Of the Marine writers, Lieutenant Colonel Cole and Major Russell agreed that a regiment would be needed for the proper defense of a base. Major Russell suggested that each company of the total 12 companies should have 150 men each, giving the three-battalion regiment 1,800 men. Major Williams' report differed somewhat as he envisioned a proper defense based on two regiments of 1,300 Marines each, assembled at the site of the advanced base outfit. With this accomplished, the "force would be drilled in all of the operations of establishing a base from the preparatory stage of map reading to the actual firing of the guns at target practice with towing targets."⁵¹ It would be several years before the General Board would decide what would be the proper defense force. It would come closest to Major Williams' ideas.

The next item to be considered was the terms in general use concerning advanced base forces. In 1911, the Navy issued a general order which defined the temporary character of the naval advanced base, and this definition along with other terms were incorporated in the Navy Regulations in 1913. The Marine Corps understood these definitions, as interpreted by Major General Commandant George Barnett, as follows:

Advanced Bases may be divided into two general classes—permanent and temporary. The permanent advanced base is ordinarily defended by permanent fortifications and covers an extensive repair plant. By 1914, an example of this type of advanced base was Pearl Harbor. The temporary advanced base is not ordinarily fortified until after the declaration of war, but in view of the length of time available the defense installed must, at the start at any rate, be of temporary nature. Again, in 1914, examples of this type of advanced base were Olongapo and Guam. The temporary nature of an advanced base involves three main elements: first, the best defense necessary to meet an attack by gunfire from the sea; second, the use of mines and minefield guns, that would prevent the approach of hostile craft in the vicinity of the train which the base is covering; third, proper defense against attacks by forces landing beyond the range of the fixed defense guns, that attack the train from the land side.

It should be noted at this point, that the use of the term "train" refers to "fleet train." During the decade preceding 1914, the con-

cept had developed of an organized fleet train consisting of auxiliaries, colliers, tankers, repair ships, water-distilling ships, supply ships, destroyer tenders, and the like needed to service and supply a combat fleet at sea, independent of a fixed shore base.

In a prophetic note on things to come, the Major General Commandant stated that "in view of the recent developments in aeronautics, adequate defenses against attacks by dirigibles or aeroplanes must be considered."⁵²

General Barnett believed that the forces assigned to the defense could be divided into two parts: the fixed defense regiment, which installed and manned the guns and mines, and the mobile regiment which opposed landings beyond the range of the fixed defense guns:

In case the enemy has once landed, retain them at such distance from the base, that the base itself could not be reached by gun fire. In addition to the fixed defense and infantry forces there must of necessity be searchlight detachments, an engineer company, signal company and field artillery.⁵³

Advanced Base Force Comes of Age

As previously mentioned, the question of the actual size of the Advanced Base Force was settled temporarily in 1913. The General Board recommended to the Secretary of Navy who agreed, that there be a fixed defense regiment of 1,250 men assembled on the East Coast at Philadelphia and another at Mare Island on the West Coast. The Advanced Base equipment on Olongapo would be redistributed to Guam and Mare Island. The board also recommended that:

... two mobile defense regiments about 1,250 men each, may be required in war to reinforce the fixed defense regiments, one on each coast—such organizations in peace are desirable but not strictly necessary.⁵⁴

In 1914, the recommendations of the General Board regarding strength of fixed and mobile defense regiments were reaffirmed by the Secretary of Navy. "The recommendations of the General Board concerning the size of the advanced base regiments are approved for the present."⁵⁵ The Major General Commandant agreed to the advanced base site locations. He said:

... both stations are centrally located in regard to other posts of the Marine Corps, transportation facilities are satisfactory and supplies can be obtained in a minimum of time, and both are near Marine Corps Depots.⁵⁶

That the General Board had faith in the Marine Corps is reflected in a letter to the Secretary of Navy which stated that:

... judging from the excellent work of the Marine Corps under all conditions with which it has been confronted for many years in the past it is reasonable to believe that, with a proper outfit, it will be able to make good whatever circumstance require the establishment of an advance base.⁵⁷

The next logical step in the evolution of the Advanced Base Force was to test the equipment and men to determine whether this organization required any changes. The General Board requested and the Secretary of Navy directed that exercises be held in connection with the Atlantic Fleet during the winter of 1913-14. More Marines became available in the summer of 1913 with the return of expeditionary forces from Cuba.⁵⁸ In addition, the Advanced Base School was reopened at Philadelphia and the 1st Regiment (Fixed Defense) was stationed there for training. The regiment consisted of one battery of 5-inch rapid fire .40 caliber guns; one battery of 3-

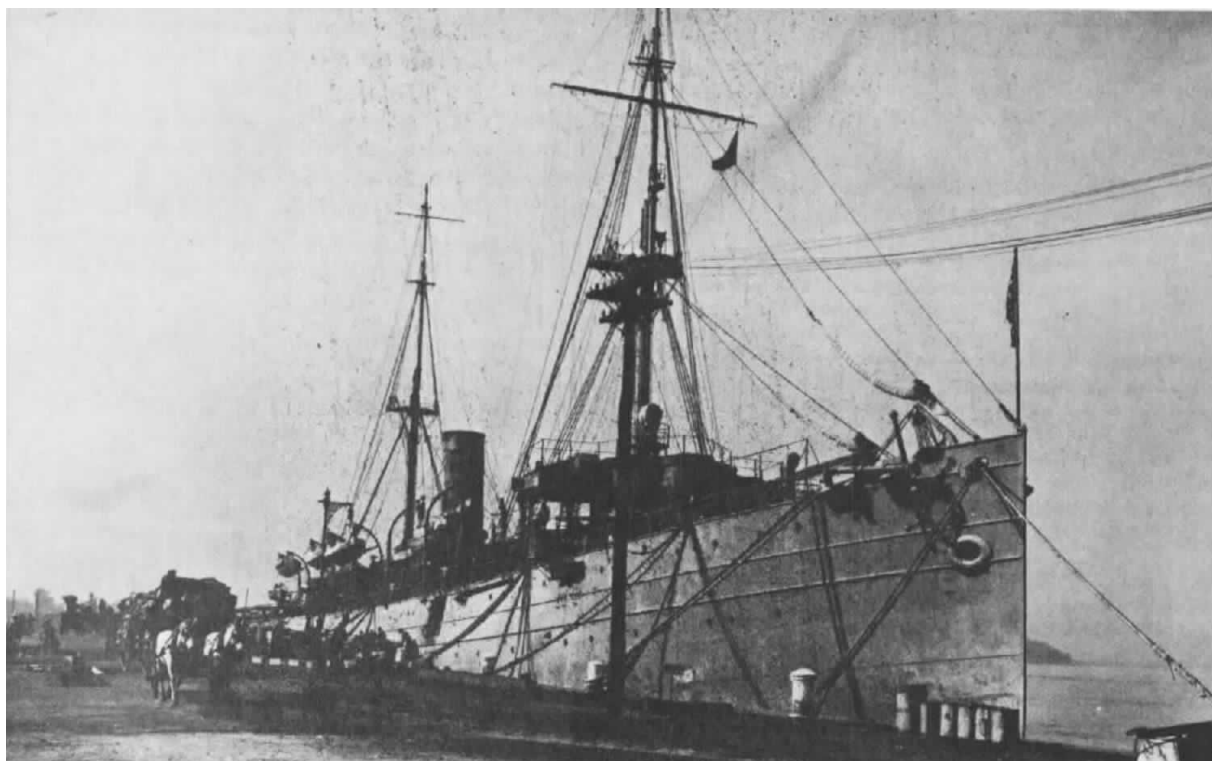
inch rapid fire guns; one battery of 3-inch landing guns; two U.S. Army experimental 4.7-inch heavy field guns; one mine battery with 60 mines; one signal company; one engineer company with the necessary equipment, together with eight automatic rifles and four 1-pounders.⁵⁹

A young captain of Marines described the stepped-up training taking place at the time:

A new scheme of things was under way in the Marine Corps. A regiment had been designated as an Advance Base Force. It was being trained to occupy a base in advance of the arrival of the fleet.

I found that the easy days in Philadelphia were over. With drills and 4 hours a day schooling, we didn't get out of the Yard until 4:30 in the afternoon. Then we had to study at night. . . .

We had six companies. One was a field artillery, one had four 5-inch naval guns, one had four 3-inch naval guns, one was engineers and machine guns, one was mines and one was signals. I was put in command of the Sixth Company, to handle the 3-inch naval guns. . . . Hours every day in the Yard we had to haul those 3-inch naval guns around. We had to build a portable railroad. We had to dig pits. We had to build gun



Supplies are brought alongside the USS Prairie, frequent Marine troopship, loading at Philadelphia in 1913. (USMC Photo #516234).

platforms. We had to mount the guns. And then, when we had it all done, we had to tear the whole business down and do it all over again. That kept up until the first of January, 1914.⁶⁰

The Atlantic Fleet exercises in January 1914 were to become the first thoroughly planned advanced base problem whereby the Marine Corps would try out the advanced base materials. It became especially important that it be successful, as far as Marine Corps participation was concerned, if not for any other reason but to counteract a report given by the Aide-for-Inspections. In March 1910, the Secretary of Navy had charged the Marine Corps to prepare for the care and custody of advanced base material and to give instruction in the use of this equipment. In addition, he advised that the Naval Division of Inspections would be charged with its inspection.⁶¹ It is with this wedge that the Marine Corps nemesis, Captain William F. Fullam, USN, reappeared on the scene. As Aide-for-Inspections, Captain Fullam was all too happy to give out the news of his findings upon his inspection and report concerning the advanced base outfit, personnel, and instruction at Philadelphia in 1913. His report was forwarded to the General Board by the then Assistant Secretary of the Navy, Franklin D. Roosevelt, on 2 May 1913.

Captain Fullam reported that the advanced base outfit and its operations were a failure. He said no actual work was done except for minor work at Culebra and Subic Bay and that "from the point of real efficiency for war purposes, it may be said that practically nothing has been accomplished during the past 13 years. . . ." ⁶² Captain Fullam stated that the Naval War College and the Advanced Base School handled the problems of advanced bases academically with a few officers receiving elementary as distinguished from practical instruction. In "painful contrast," he pointed out, the Italians had completely and promptly established an advanced base outfit in Sicily in October 1911 in 48 hours. This, he said, was an example of what could be done and ought to be done in advanced base operations. He later admitted that he purposely refrained from inviting special attention to the fact that the Italian force was apparently composed of naval officers and sailors! Captain Fullam blamed what he called the "past failures" on the material, personnel, instruction, and lack of transports. He attrib-



Rear Admiral William F. Fullam, vigorous opponent of the use of Marines for sea duty. (USN Photo #19-N-3646).

uted these past failures to the Marine Corps and categorically stated that it was the fault of Marine Corps organization. Never at a loss for words, Captain Fullam not only inspected the problems but solved them. He believed the Marine Corps should have been broken into permanent battalions to serve under their own colors. After reorganizing the Marine Corps, Captain Fullam introduced in a disguised form the argument that the Marines should be removed from naval vessels:

It is plain that the work assigned to Marines on board battleships and cruising vessels of the Navy gives them no training or experience whatever with mines, torpedoes, and other practical work, but this employment simply scatters them in such manner that an effective and properly instructed organization is impracticable. This fact is emphasized because it has been, and will continue to be, the one most serious obstacle to that organization and instruction which would make the Marine Corps most effective in time of war, and which would at the same time secure homogeneity in our man-of-war crews and recognize that the bluejackets are in every way fitted for, and that they should be instructed in, every military duty on board ship.⁶³

Major General Commandant William P. Biddle answered the charges of Captain Fullam in detail. Perhaps the most poignant reply from the CMC was that pertaining to the organization of the Marine Corps. He said:

. . . the subject of a proper organization of the Marine Corps has received the careful study of



Major General William P. Biddle, 11th Commandant of the Marine Corps, 3 February 1911 to 24 February 1914. (USMC Photo #308435).

Marine officers of ability and experience and it is believed by me and by them that the present system of semipermanent companies, battalions and regiments is much better suited to the requirements of the Marine Corps than would be the system by which officers and men were attached permanently to one organization during their entire service.⁶⁴

The President of the General Board, in the person of Admiral Dewey, carefully examined all of the proposals and criticisms of Captain Fullam regarding the Marine Corps and the Advanced Base Force. He carefully read the replies to the criticism by Major General Biddle. Without exception, including the proposal to move the Advanced Base School from Philadelphia to Pensacola, Captain Fullam's proposals were logically and systematically disapproved by Admiral Dewey and the General Board. Admiral Dewey was particularly agitated with Fullam's attempt to resurrect the argument concerning removal of Marines from naval vessels. He said:

... the General Board does not believe that any actual economy will result from the removal of the Marines from the battleships and cruisers for, as the Marines now are stationed at the battery and its accessories, their places will have to be taken by an equal number of bluejackets. Their

commanding officer, being a division officer, will have to be replaced by a line officer. The General Board regrets the renewed agitation of the question of removal of Marines from ships of the Navy in which the strength of the Marine detachment is sufficient to demand the presence of a Marine officer, and it further believes that this action, if persisted in, may eventually cause the loss of the Marine Corps to the Navy and its absorption by the Army.⁶⁵

Captain Fullam should have been awarded a medal as the one most likely to wreck Navy-Marine Corps relations. In spite of the Fullams, or because of the Fullams, the Navy-Marine Corps relationship survived and out of it was forged the Navy-Marine Corps team of today.

It was with this background, the Marine Corps Advanced Base Force commenced the Atlantic Fleet Exercises in January 1914. It was going to defend thoroughly the advanced base against invasion. The theories on paper would now become the realities of a defense of an invasion. Though not realized at the time, the exercise was the forerunner of several phases of what are known now as amphibious operations. At no time was that term used during the period being discussed. The General Board specifically requested the Marine Corps to give practical instruction and application to such items as:

- (1) Stowing material on transports;
- (2) Landing material from the transport to the beach;
- (3) Transporting the material from the beach to the various sites;
- (4) Preparation of battery sites and mounting of the guns;
- (5) Establishment of fire control and observation points;
- (6) Planting of mines;
- (7) Defense of mine fields;
- (8) Establishment and use of searchlight stations;
- (9) Exercise with guns, including target practice;
- (10) Covering the site selected against attacks from the land, including transportation necessary for supply and handling of material.⁶⁶

The Marine Corps phase of the exercise got under way when, on 3 January 1914, the First Advanced Base Regiment, a fixed defense regiment commanded by Colonel Charles G. Long, sailed from the Philadelphia Navy Yard on the transport *Hancock*. The Second Advanced Base Regiment, a mobile regiment of 27 officers commanded by Lieutenant Colonel John A. Lejeune, sailed from Pensacola, Florida on the transport *Prairie*.⁶⁷ These two regiments be-

came the First Advanced Base Brigade under the command of Colonel George Barnett and arrived off Culebra on 10 January 1914. *

After the exercise Barnett, then Major General Commandant reported to the Secretary of Navy that:

... upon their arrival at Culebra the men, with the advance base material, landed—guns were mounted and proper disposition was made of the guns and material for the advance base defense against an attack by the fleet, who landed forces from the ships. In 6 days time the guns were all mounted and ready for firing and the island was declared in a state of war. From that time on affairs on shore were conducted as nearly as possible as they would have been in case of real war. Bombardments of the shore fortifications were made, operations were conducted for the discovery of mine fields and attempts made to drag for the mines. Searchlight tests were made, also tests for plotting from the plotting stations of the mine company. A night attack was made by a landing force from the fleet, which the umpires decided would have been unsuccessful in case of real war, under the conditions existing.⁶⁸

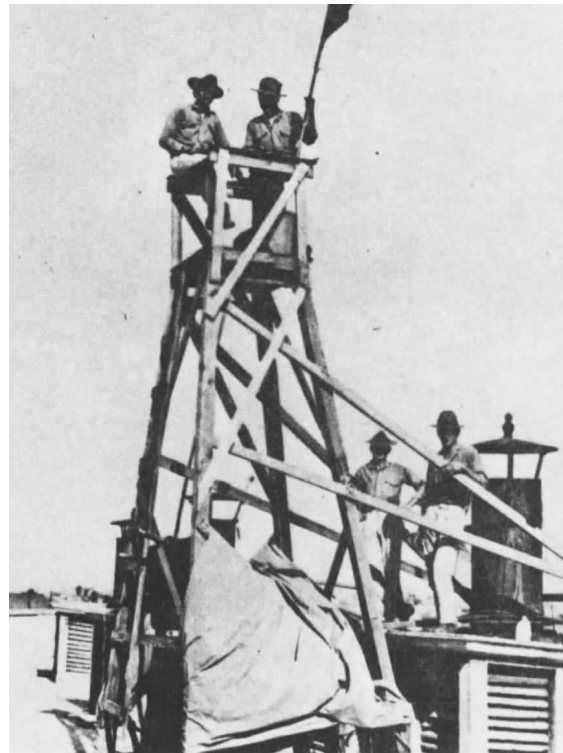
In an unofficial version of the exercise, Captain Frederic M. Wise recalled:

There was a peculiar situation on Culebra. It had no land-locked harbor where we were going to land, though at another part of the island you can go through a cut and find a land-locked harbor big enough to shelter the whole fleet. But at the spot where we landed, with a heavy wind blowing up every afternoon, all the material had to be landed mornings. In the afternoon the sea was too heavy. Lighters we had carried down on the *Hancock's* deck were swung overboard. Those heavy naval guns were hauled up from the holds, lowered aboard the lighters, and towed ashore by launches. They were skidded ashore, the portable railroad was constructed up to the gun positions high on the hills, gun-pits dug, platforms built, guns mounted. Inside several days, the Island of Culebra was fortified. Mine fields had been laid while we were getting our batteries into position. Telephone communications were established. An infantry regiment had arrived with us. They dug rifle pits. We were ready for the "enemy" fleet.

Ten days or 2 weeks after we had the island fortified, all the preliminaries were completed, umpires appointed, all the maneuvers started. The big ships of the fleet, which were supposed theoretically to have transports full of troops with them, slipped up under cover of the night, and sent landing parties of sailors and Marines ashore. They were to capture the batteries and clear the path for a big landing force. The umpires watched

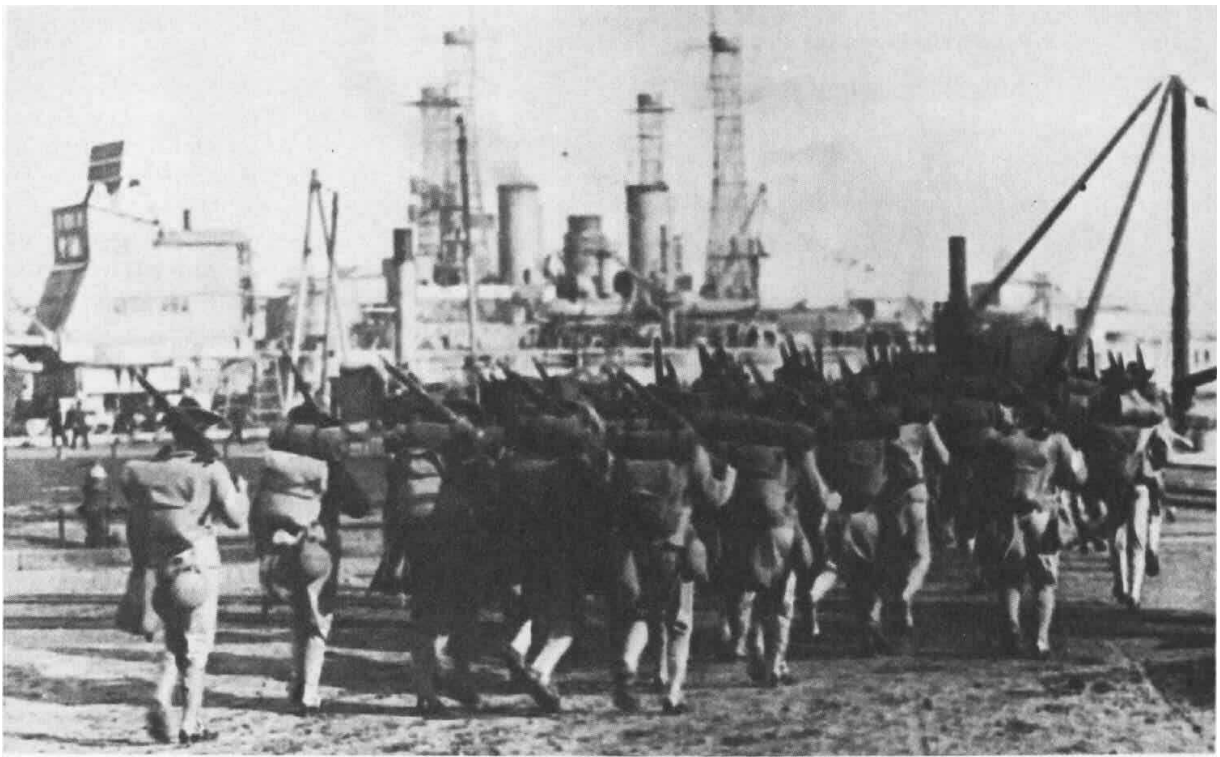
it all. It was one glorious "Fourth of July." Everybody was blazing away. And then the umpires solemnly announced that the Island of Culebra was impregnable, which I always thought was a damned lie.⁶⁹

On board the USS *Hancock* at Pensacola, Florida, the First Brigade Commander, Colonel Barnett, was transmitting the "Report on Maneuvers and Operations." In the last paragraph of his letter, Colonel Barnett said "I have this day turned over command of the Brigade to Lieutenant Colonel John A. Lejeune, and I feel that in so doing I am turning over to him a most efficient brigade."⁷⁰ In general, Colonel Barnett was praising the performance of the brigade—an efficient brigade. The brigade commander's analysis of the exercise had listed several minor failings but did state that "one of the most serious problems to be dealt with is the providing of proper transportation for supplies, guns and ammunition, etc., on shore, and it is believed that a reasonable amount of motor tractors must be provided."⁷¹ The Commander in



Signal tower manned by Marines at Vera Cruz, 1914. (USMC Photo #517450).

*Ten days after his return to Washington in February 1914, Colonel Barnett was appointed the 12th Commandant. He became the first graduate of the Naval Academy (Class of 1881) to become CMC, and the first CMC to be appointed to a 4-year term, in accordance with a law passed the previous year.



Marines leaving for Vera Cruz, 23 April 1914. (USMC Photo #H-276-3).



Horse-drawn 3-inch naval landing gun drill, Camp Elliott, Panama Canal Zone, 1913. (USMC Photo #521516)..

Chief of the United States Atlantic Fleet, Rear Admiral Charles J. Badger, explained:

... the actual establishment of the Advanced Base at Culebra this winter, the joint exercises held with the fleet, and the gun and mine practices held have been of great benefit to the personnel of the Brigade. Unfortunately, the gun and mine practices were unavoidably hurried and the maximum benefit could not be derived therefrom. It is strongly recommended that frequent opportunity be given for extended Advance Base work of this kind. . . .⁷²

The now Major General Commandant and former brigade commander, George Barnett, replied:

... the experience gained in the exercise last winter, I have no doubt that the outfit as furnished can be standardized and cut down somewhat, as I fully appreciate the necessity of mobility which can only result where the outfit furnished is as small as possible, considering all the necessities of the portions in use.⁷³

Unquestionably much valuable experience and training was gained from the establishment of the advanced base at Culebra in January 1914. Many of the mooted questions as to the number of personnel and types of equipment were settled. Specifically settled was the size of the Advanced Base Force. Admiral Dewey wrote that the:

... General Board therefore considers that two Marine Regiments, one fixed defense and one mobile, of about 1,250 enlisted men each, regularly drilled in advanced base operations, is an adequate peace time provision to defend Culebra or any of the advanced base sites so far considered by the General Board. This number is well within the capacity of the peace complement of the Marine Corps to furnish, and of the Navy to transport.⁷⁴

The Secretary of Navy, Josephus Daniels, approved Admiral Dewey's and the General Board's recommendation two weeks later. The General Board had recommended that the advanced base exercises be held each year as a matter of routine training. History and events would interfere with the training until the winter of 1922. The expeditionary role of the Marine Corps was realized with the landing of Marines at Vera Cruz in Mexico in April 1914, Haiti in 1915, Santo Domingo in 1916, and France in 1917. The decade of the 1920s would see the resumption of advanced base training.

The Advanced Base Force, while not destined to be actively committed during World War I, was kept intact, numerically at least,

during the war. The potential use of the force in the Caribbean was always considered. The General Board felt that one of the immediate weaknesses was the poorly equipped bases in the Caribbean. The board felt:

... in a war with Germany the United States may at some stage in the conflict find Germany on the offensive with her fleet at large and in a position to operate in the Caribbean against the Virgin Islands, Porto Rico, Cuba and ultimately the Panama Canal. To meet this offensive the United States must have properly equipped bases in the Caribbean. . . .⁷⁵

Again time and events in other parts of the world would directly affect the happenings in the Caribbean. Events in Congress during the summer of 1916 would change the Marine Corps for the remainder of the decade, and indeed for the remainder of its history.

"The World Must Be Safe for Democracy"

Woodrow Wilson, War Message,
2 April 1917

The Naval Appropriation Bill which became law on 29 August 1916 ostensibly authorized the largest shipbuilding program ever undertaken by the United States up to that time. The Marine Corps personnel bill that was incorporated into the appropriation bill had increased the authorized number of enlisted men by 5,000, from about 8,000 to over 13,000, and the number of commissioned officers from 343 to 600.⁷⁶ It also permitted the Marine Corps to promote to brigadier general, Colonels Littleton W. T. Waller, Joseph H. Pendleton, Eli K. Cole, and John A. Lejeune. An active recruitment campaign was instituted for enlisted men, and numerous hours of examination for promotion of a great many officers and the appointment of many second lieutenants took place. Another aspect to be considered was the acquiring of new bases to train these hoped-for new personnel. In quick order, San Diego was chosen by the House Naval Affairs Committee as the site for the West Coast base. The city of San Diego had donated a large tract of land which was supplemented by the government purchase of additional tracts.

Quantico, Virginia, became the East Coast base. It had all the area for field exercises, and rifle and artillery ranges. The Commandant "did not want a base within the limits of an active navy yard as the industrial and other Navy requirements paramount there

would probably crowd out the Marine Corps activities."⁷⁷ Expansion of the Marine Corps became a fact. Over a period of approximately

two years, the Marine Corps expanded and demobilized in record breaking numbers. The following figures illustrate these fluctuations:

	<i>Commissioned and Warrant Officers</i>	<i>Enlisted Men</i>	<i>Total Marines</i>
U.S. Declared War 6 April 1917 -----	511	13,214	^a 13,725
30 June 1917 -----	776	26,973	^b 27,749
13 March 1918 -----	1,389	38,629	^c 40,018
30 June 1918 -----	1,503	51,316	^b 52,819
Armistice Day 11 November 1918 -----	1,474	70,489	^d 72,963
Maximum Strength Peaked 11 December 1918 -----	2,462	72,639	^a 75,101
30 June 1919 -----	2,270	46,564	^b 48,834
30 June 1920 -----	1,104	16,061	^b 17,165

^a Major Edwin N. McClellan, USMC, *The United States Marine Corps in the World War*, (Washington: Government Printing Office, 1920).

^b U.S. Department of Commerce, *Historical Statistics of the United States-Colonial Times to 1957* (Washington: Government Printing Office, 1960).

^c "Strength of the Navy, March 13, 1918," *U.S. Naval Institute Proceedings*, v. 43, no. 5 (May 1918), p. 936.

^d These figures include USMC reserve personnel and female reservists.

Guidance of all this expansion within the Marine Corps became the responsibility of the administrative staff departments and the Assistant to the Commandant, Brigadier General John A. Lejeune, and his small working group. They supervised a more than five-fold expansion of the Marine Corps. They dispatched two brigades to France, maintained an advanced base force of brigade size, provided expeditionary forces in the Caribbean, and fur-

nished security detachments and sea-going Marines for the Navy.⁷⁸ The best summary of the actions of Marines in World War I, is still McClellan's account. He observed that:

Within 1 year after the outbreak of war the Marine Corps placed about as many enlisted men in France as there were in the Marine Corps when war was declared . . . Approximately 30,000 Marines were sent overseas to join the American Expeditionary Forces and 1,600 for naval duty ashore . . . During the war a great many additional Ma-



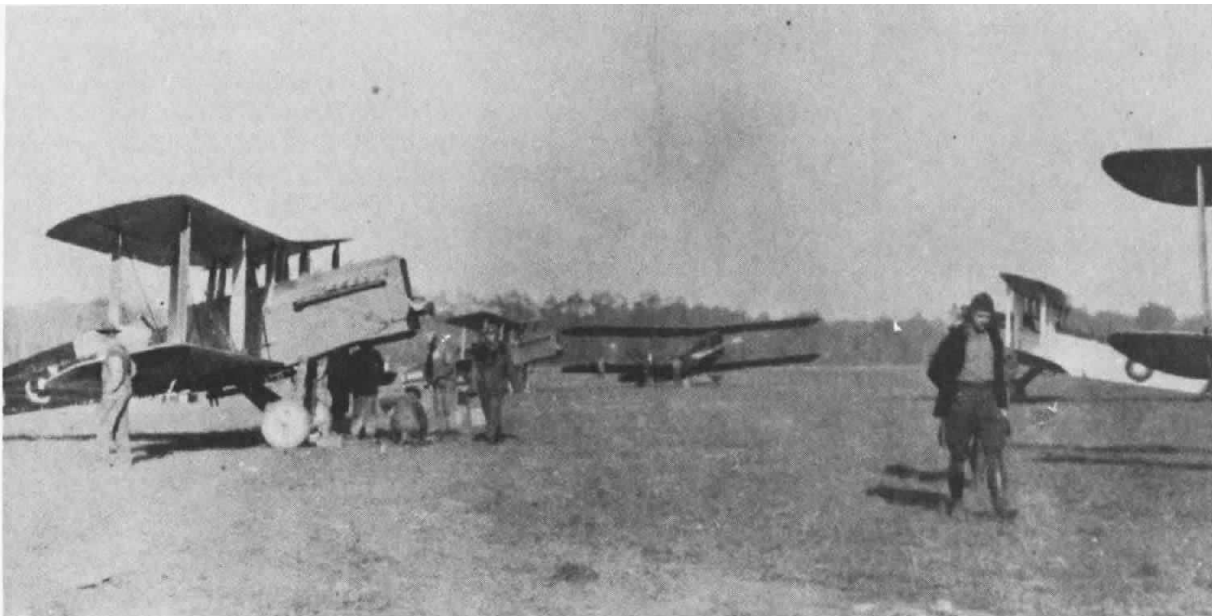
Machine gun instruction at Marine Officers' School, Quantico, during World War I. (USMC Photo #20447).

rine detachments were detailed to guard the radio stations, naval magazines, ammunition depots, warehouses, cable stations and other naval activities, and the detachments already established were largely augmented . . . The Marine Corps, while maintaining the Fourth Brigade of Marines a total of 258 officers and 8,211 enlisted men, that fought in eight battle operations suffering approximately 12,000 casualties, placed and maintained the Fifth Brigade of Marines of the same strength in France; supplied the Commanding General of the Second Army Division, and many officers on his staff; furnished a considerable number of officers to command Army units of the Second and other divisions, and for staff and detached duty throughout the American Expeditionary Forces; participated in the naval aviation activities in France and in the Azores; and during the period of the war succeeded in performing in a highly satisfactory manner the naval duties required of it, including the maintenance of two brigades of prewar strength standing by to protect the Mexican oil fields, and as an advanced base force in Philadelphia; one in Cuba; one in Santo Domingo and one in Haiti; administered and officered the Haitian Gendarmerie and Guardia Nacional Dominicana; as well as providing efficient Marine detachments for numerous navy yards and naval stations in the United States; and in the Virgin Islands; Guantanamo Bay, Cuba; Pearl Harbor, Hawaiian Islands; Guam; Cavite and Olongapo, P.I.; Managua, Nicaragua; Peking, China; San Juan, P.R.; London, England; Cardiff, Wales; Paris, France; and the Azores; and supplied many officers and enlisted men for special and detached duty at home and abroad.

World War I gave the Marine Corps experience in integrated staff work:

After a study of the British and French Army Staffs, as developed through 3 years of combat experience, the Commanding General, AEF, adopted a system patterned upon the French staff . . . In turn the U.S. Army staff system became thoroughly familiar to Marines serving in the AEF. It was employed by the 4th and 5th Marine Brigades, as they were organized under AEF tables of organization. While brigades were the largest Marine units to serve in France, individual Marines learned the functioning of the staff at divisional level through assignments to Army units. A Marine General commanded the 2d Infantry Division, while other Marines served on its staff from time to time. That this staff system proved useful for Marine purposes is attested to by the fact that Marine Corps staff development in the postwar period was based on the staff of World War I.⁷⁹

Another aspect of Marine Corps experience from World War I was in the aviation field. The relatively new Marine Corps aviation component, on the day the United States declared war against the Central Powers, 6 April 1917, consisted of four officers and 30 men, all part of the complement of the Naval Air Station, Pensacola, Florida.⁸⁰ By the end of the war, the total officer and enlisted strength exceeded 2,400. The Marine Corps selected and trained its own pilots and mechanics. They



Planes of the 1st Marine Aviation Force at La Fresne, France, in 1918; on the left are DH-9As of "A" Squadron, on the right is a DH-4B of "C" Squadron. (USMC Photo #529554).

flew just about all types of planes existing at the time, DeHaviland 4Bs, Curtiss JNs, etc. The 1st Marine Aeronautic Company, consisting of 13 officers and 133 enlisted men, deployed to Ponta Delgado, Azores, for anti-submarine patrol operations in January 1918. With 18 seaplanes, it was the first fully trained and equipped American aviation unit to go overseas in World War I.⁸¹

In July 1918, the First Aviation Force landed in France. While waiting for their DeHaviland DH-4Bs to arrive, the pilots did some moonlighting with the British and French. This Aviation Force consisted of Squadrons A, B, C, D, and Headquarters Company. It was organized to operate under the Navy as the Day Wing of the Northern Bombing Group in northern France. It operated in the Dunkirk area against German submarines and their bases at Ostend, Zeebrugge, and Bruges in Belgium. Incidents of Marine aviators destroying a troop train and dropping food to beleaguered French troops were commendable but isolated.

The war would not be won by Marine aviation or any other aviation. The war was a land-mass war—with great armies engaged, supported by artillery, and later tanks. Aviation, in its infancy, had to wait for another day. It was ironic that, through no fault of their own, Marine aviators did not fly support for

any Marine ground forces. It was Major Alfred A. Cunningham, the first Marine aviator and the fifth naval aviator, who commented that "the only excuse for aviation in any service is its usefulness in assisting the troops on the ground to successfully carry out their operations."⁸² Other times and other wars would fully justify Marine aviation and what it could do in support of the Marines on the ground.



In France in 1918. Left to Right: Brigadier General Wendell C. Neville, commanding the 4th Brigade of Marines; Assistant Secretary of the Navy Franklin D. Roosevelt; and Major General John A. Lejeune, commanding the 2d Division. (USMC Photo #529042).

CHAPTER II

POSTWAR DISARMAMENT PERIOD

America's present need is not heroics but healing; not nostrums but normalcy; not revolution but restoration; . . . not surgery but serenity.

Senator Warren G. Harding, 1920

Normalcy, while difficult to define, was what the American people wanted. The decade of the twenties would usher in a new President, a new political party, and for the Marine Corps, a new Commandant. The American people rejected the League of Nations and the Democratic Party. They wanted to leave the problems that international relations brought and return to the "normalcy" promised by the Republicans in the presidential election of 1920. Warren G. Harding and his party won and, with this popular support, disowned the League of Nations. If the League was unpopular, disarmament was not. Senator William E. Borah of Idaho introduced in December 1920, a month after Harding's election, a resolution that was to become a joint congressional resolution, which favored a tripartite disarmament conference. By June 1921, it passed the Senate unanimously and the House by a vote of 332 to 4. Harding's Secretary of State, Charles Evans Hughes, made informal overtures to the governments of Britain, Japan, France, and Italy in a note of 8 July 1921. He later broadened this invitation to Belgium, China, Portugal, and the Netherlands. The agenda was also enlarged to include not only arms but problems of the Far East in general. Although a great Asiatic power, Russia was not invited to attend since the United States refused to recognize the existence of the Soviets. All but Japan promptly replied with polite enthusiasm. After a 2½-week delay, Japan acceded to the invitation to discuss naval disarmament. On 11 August 1921, Secretary Hughes issued formal invitations to the nine select powers. Three months later on 12 November 1921, the conference met in Washington with all the fanfare appropriate to the first international

congress of this kind ever to be held in the Western Hemisphere:

Secretary Hughes, instead of mouthing the usual platitudes at the opening session, threw a verbal bombshell by suggesting that the nations limit their naval weapons and scrap existing ships. He proposed that the United States, Great Britain and Japan junk a total of 66 ships amounting to 1.87 million tons. Hughes stunned the audience with this audacious proposal; hushed silence greeted him while he read his proposals followed by wild applause at the conclusion of his address.¹

"In less than 15 minutes, he destroyed 66 ships with a total tonnage of 1,878,043—more, as one British reporter put it, 'than all the admirals of the world have sunk in a cycle of centuries.'"² Summarized, Secretary Hughes proposed a 10 year "holiday" in capital ship construction;* scrapping specific ships which would result in a 5:5:3:1.7:1.7 ratio among the United States, Great Britain, Japan, Italy, and France.**

The dramatic announcement vastly shortened the time of negotiation and helped assure the acceptance of the American proposals. "The reactions of the press and pulpit all over the world were tremendously enthusiastic. If Hughes' address was intended as an oblique bid for worldwide popular support, it was outstandingly successful."³ The three great powers most concerned, the United States, Great Britain, and Japan, ultimately agreed to the ratio formula but with compromises by all. France and Italy had no problem agreeing to their ratios.

Considering the time, the United States was in the mood for massive cuts in the federal budget. "Senators Henry Cabot Lodge and Oscar W. Underwood bluntly informed

*As defined at Washington, a capital ship was a warship, not an aircraft carrier, exceeding 10,000 tons or carrying guns in excess of 8 inches in caliber.

**The ratio 5:5:3:1.7:1.7 referred to the total tonnage allowed in capital ships as 500,000; 500,000; 300,000; 175,000; and 175,000 tons.

Hughes that Congress, ever-conscious of the taxpayer, would not vote additional burdens in order to attain the costly and unnecessary honor of ruling the waves."⁴ Great Britain, with a badly strained economy, welcomed a holiday in building. By 15 December 1921, Japan consented to the Hughes ratio in spite of mass meetings in Tokyo and newspaper editorials supporting demands for greater tonnage. The alternative, for Japan as well as the other powers, was a ruinous naval race. Japan's reward for her consent to the ratio was the controversial nonfortification clause to be included in the treaty.

America agreed not to fortify her Pacific islands, excepting Hawaii. The United States particularly agreed not to fortify the Philippines, Guam, Wake, and the Aleutians. Great Britain agreed not to fortify Hong Kong, Borneo, the Solomons, and the Gilberts. Japan, in turn, agreed not to fortify Formosa or the former German possessions in the Pacific north of the equator, which had been mandated to her, notably the Marianas (less Guam) and the Carolines. It would be an understatement to say that the nonfortification clause was bitterly denounced by the Navy:

American naval authorities were shocked at the agreement to forego the development of adequately defended naval bases in Guam and the Philippines. To them it appeared that the United States was automatically forswearing the possibility of successful fleet operations in Asiatic waters and in effect underwriting Japanese naval supremacy in the Far East. Subsequent history has of course largely substantiated this view.⁵

Professor Thomas A. Bailey, American historian and writer, asserted:

... as far as naval limitation was concerned, the non-fortification agreement was the crucial compromise. Japan accepted a small naval ratio, but obtained greater security. Britain and America consented to leave certain of their insular possessions inadequately protected, but retained greater tonnage in capital ships.⁶

In the context of the times:

... there was a well founded conviction on the part of the American delegation that it was bargaining away an empty right, one that Congress would probably either never exercise at all or else implement on too modest a scale to make any difference in event of war. After all, both Guam and the Philippines had already been American possessions for 23 years without anything much being done toward military and naval development. What real prospect was there of a change of American policy? On the other hand, there was good reason to think Japan would fortify her island possessions, in the absence of a treaty prohibition.⁷

The major achievements of the Washington conference were reflected in the adoption of three closely interrelated treaties. The United States, Great Britain, France, and Japan agreed in the Four-Power-Treaty to respect one another's rights in their insular possessions in the Pacific and to consult together should such rights be threatened. With the addition of Italy, these same nations concluded the Five-Power-Treaty with its naval ratio and nonfortification clause. "The public accepted the Five-Power-Treaty, not as a temporary naval arrangement at best, but as the final substitute for the irksome necessity of naval expansion."⁸ And finally, all those countries with interests in the Pacific joined in the Nine-Power-Treaty in which they undertook to respect the sovereignty and independence of China and to uphold the principles of the Open Door policy. This then was the climate, the climate of disarmament and hopeful peace, that the United States embarked on in the decade of the twenties.

In America and elsewhere, it is a generally accepted sociological certainty that wars, whether the world war variety or the undeclared Korean and Vietnam types, do affect society at all levels. The essence of war transforms, for good or bad, the social, political, economic, and military fabric of our nation. The twenties were no exception. Excluding the military, the bibliography of the "Roaring Twenties" or "Jazz Age" reflected one of the best documented decades of our history. The military bibliography is sparse. Suffice it to say the public became less and less interested in war and anything related to it. The Harding, Coolidge, and Hoover administrations pursued the policy of economy in the government. Obviously, this policy affected the military services. It curtailed the personnel strength, equipment, and general spending of the services. For this period, it would seem that the military was in a retrenchment phase. Possibly so, but it did channel the Services into making do with what they had and preparing for war with what they hoped to have. It gave time to study the lessons of the Great War and to experiment.

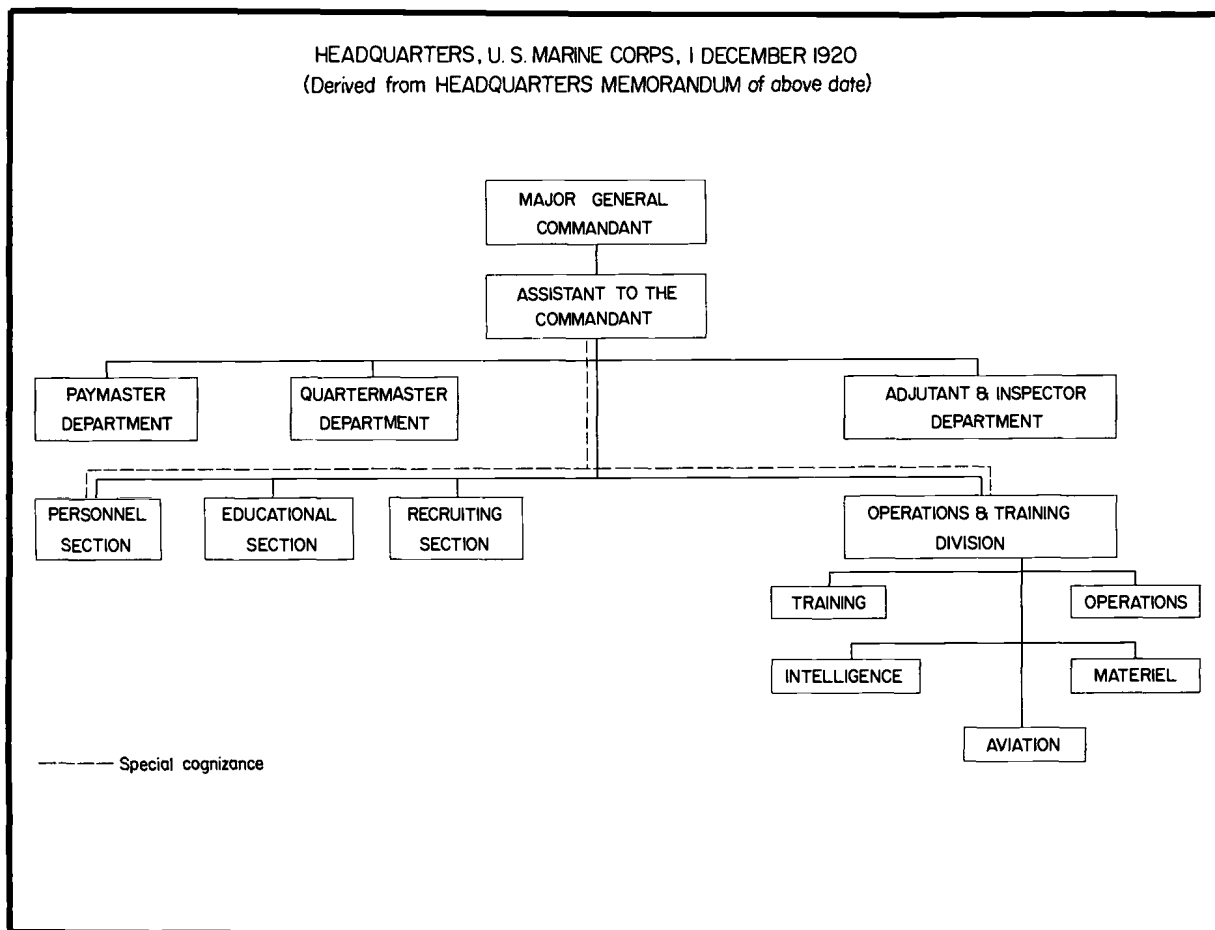
In a rather paradoxical situation, the lesson of World War I that the Navy and the Marine Corps chose to study was the greatest military failure of modern times—Gallipoli. For decades, Gallipoli would be the symbol of the absurdity of endeavoring to land troops

and supplies on a hostile shore. The Army would not give Gallipoli a second thought, primarily because it was in the business of land-mass warfare and not that of seizing a beach. The Marine Corps, from the late twenties up until World War II, would have as an integral part of its schools' curriculum a definitive study of Gallipoli and the how's and why's of its failures.

The Marine Corps would also experiment with its own internal reorganization, schools system, and equipment. This decade would become one of awareness. The most responsible people in the Marine Corps became cognizant of the fact that it could not continue to duplicate the Army, as it did in World War I. The Marines, however, by their experience in advanced base training and vast amount of expeditionary service could work out a mission that was, by its very nature, unique for the Marine Corps.

Evolution of a Staff

In June 1920, the last months of the Wilson Administration and Navy Secretary Josephus Daniels' tenure, Major General John A. Lejeune was appointed 13th Commandant of the Marine Corps. He was to have a rather rare distinction of serving three Presidents as Commandant and could have been appointed for a fourth term had he not chosen to retire in 1929. Many problems faced the new Commandant such as recruiting, officer promotions, and internal reorganization of Headquarters. In the area of recruitment, Congress and specifically the House of Representatives, authorized certain personnel strength for the Marine Corps. In fiscal year 1920, the authorized strength for officers and men was 27,400. The House of Representatives, however, only appropriated funds for 20,000 officers and men. Similarly, today's authorized strength of the

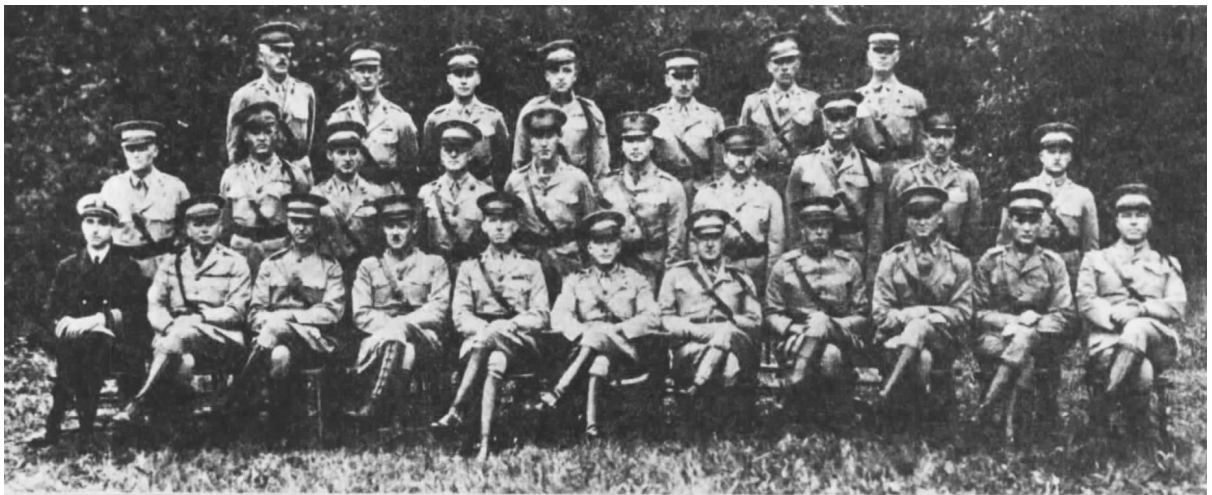


Marine Corps is 400,000 men as provided for by the National Security Act of 1947 as amended, but actually the appropriated funds for the personnel strength for fiscal year 1971 was 237,100 men.⁹ In any event, the recruitment drive in the early years of the decade was a success and the appropriated strength of the Marine Corps averaged about 20,000 men for the remainder of the twenties. The Commandant unsuccessfully asked Congress for legislation to change the method of officer promotions for most years of his tenure as Commandant. The system, with its inequities in the examinations adopted by the Marine Corps in 1892, did not keep pace with the Army and Navy systems of promotions of their officers. The Marine Corps would have to wait 9 or 10 more years before a "selection" method of officer promotion was authorized by Congress.

In regards to internal reorganization of the Headquarters, it was apparent to the Commandant and to other thinking Marine officers that the Marine Corps could never return to the pre-World War I years of operation. In those years, the Commandant plus three or four of his aides could totally manage the operations of the Corps. It would be im-

possible for them to do so in the postwar Marine Corps. As a consequence, the Army staff system, familiar now to many senior Marine officers with World War I experience, was adopted. It must not be assumed that Marine Corps officers were totally without staff experience. On the contrary, valuable staff experience, while not the functional variety evolved in World War I, was gained by Marine officers serving with the Haitian Gendarmerie and the Guardia Nacional of the Dominican Republic. In addition, officers serving with the Advanced Base Force and with the fleet gained valuable staff experience. It is interesting to note that a look at the evolution of the Officer Fitness Report reflects the emphasis placed on command and staff assignments.

Prior to 1916, general comments were made on record cards and in correspondence concerning officer qualifications. From about October 1916, the Adjutant and Inspector's Division of Headquarters Marine Corps introduced into the administrative system Navy-Marine Corps (NMC) Form 652. This form was entitled "Report on the Fitness of Officers of the U.S. Marine Corps." The form would continually change in subsequent years to add or delete items deemed essential or nonessential



COMMANDING OFFICER AND STAFF, MARINE CORPS SCHOOLS, QUANTICO, VA., 1927-1928

Front Row (left to right): Lieutenant Commander E. W. Broadbent, U. S. Navy; Major R. S. Geiger, Major W. Tharr, Major W. C. Denig, Lieutenant Colonel W. J. Upshur, Colonel R. H. Dunlap, Major R. L. Denig, Major H. H. Ciley, Major C. J. Miller, Major G. L. Larsen, Major K. E. Rockey, Captain L. H. Miller, Captain J. M. Arthur, Captain F. G. Patchen, Captain T. Harris, Captain C. O. Nimmer, Captain J. J. Mahoney, First Lieutenant S. E. Rüddeckhof, Captain D. R. Newton, Captain J. T. Francis, First Lieutenant E. A. Pollock, Chief Quartermaster Clerk B. Eagan.

Many of the general officers who led the Marine Corps in World War II and the Korean War (Geiger, Denig, Larsen, Erskine, Hermle, Rockey, Nimmer, Pollock) are included in this group. (USMC Photo #29442).

to the Marine Corps. In the initial NMC form, among the many items under "Professional Qualifications," there appeared "Advanced Base Work" and "Fleet Marine Officer." The latter item pertained to a senior Marine officer assigned to the fleet as a staff and liaison officer. In about April 1922, the NMC form was revised again and this time "Advanced Base Force" was deleted but "Force Marine Officer" was added. Force Marine Officer referred to duty with the Expeditionary Forces that was quite familiar to all Marine officers of the twenties. The form also reflected new billets stemming from World War I such as "gas officer," "machine-gun officer," and "Division Marine officer." In about October 1926, the fitness report was again updated to the form which would be used until about September 1935. It was essentially the same form but with the addition of specific questions as to the fitness of an officer to command an organization "appropriate to the next higher grade" such as platoon, company, battalion, regiment, brigade, or corresponding organization.

General Lejeune reorganized his Headquarters into a staff system which, in essence, is still in effect today. The Commandant, in a Marine Corps Order of 1 December 1920, reorganized the Headquarters staff as follows (see also Chart 1):

The Planning Section was expanded into the Division of Operations and Training, composed of Operations, Training, Materiel, Military Intelligence, and Aviation Sections . . . Although it was not organized according to the numbered system employed by major field commands, the Division of Operations and Training, nevertheless was divided into functional subdivisions, encompassing operations, intelligence, training, and logistics, such as were found in the field-type staff. There was no personnel section, however and the Aviation Section was an organization not found in the executive staff of major field commands. Staff organization for the control of aviation matters was complicated by the fact that the officer in charge of Marine Aviation served both the Commandant of the Marine Corps and the Chief of Naval Operations. As first organized in 1919, the Marine Aviation Section was directly under the control of the Director of Naval Aviation in the Office of the Chief of Naval Operations. The duties of the Marine Aviation Section included supervision of recruiting, training, personnel, and logistical matters pertaining to aviation.

. . . By this organization, the Commandant also created the Personnel, Recruiting, and Educational Sections. Their function was to relieve the Commandant and his immediate aides of what had become an unmanageable burden of routine administration.¹⁰

In the field, the reorganization paralleling that of Headquarters took the form of a functionally organized executive staff, combined at the higher levels with a staff of technical experts. The executive staff, according to a Marine Corps definition, was "that body of assistants to the Commanding General of a Force or Independent Brigade of Marines which coordinates the work of the Administrative, Technical, and Supply Staffs, and of the Troops; and which composes and issues the detailed orders by which the decisions of the Commanding General are communicated." The tables of organization of 1922, which first provided for executive staffs in the Marine Corps, specified that an independent brigade rated a staff made up of B-1, personnel; B-2, intelligence; B-3 operations and training; and B-4, supply. A brigade which was part of a larger unit, however, used the World War I-type staff in which personnel and supply were combined. Infantry regiments, as part of a brigade, had a staff similar to that of an independent brigade except that the four numbered sections were designated R rather than B. Independent infantry regiments had these same staff positions as did independent infantry battalions, but without the numerical designations. Within a regiment, battalion staffs at first lacked a supply officer, but this deficiency was remedied by 1925. By 1936, however, the four section staff had been adopted for all ground units in the Marine Corps from battalion through brigade level.¹¹

Duties and Missions

In 1922, the Commandant wrote to the members of the General Board recommending to them that the strength of the Marine Corps should be determined by its peacetime duties and wartime missions. He was endeavoring to point out that:

. . . whereas the Conference on the Limitation of Armament has restricted the immediate material means (navies) for waging war on sea, there is no restriction on the size of the mobile forces which may be attached to, or be held in readiness for service with the Fleet.*¹²

*It would be pointed out that the Conference on the Limitation of Armament is synonymous with the Washington Disarmament Conference and the Naval Disarmament Conference. Subsequent American history books use the names interchangeably. As a result of the Conference, initially held in Washington, nine separate treaties were drafted and signed.

The Commandant set forth the Marine Corps duties and missions as follows:

. . . 2. The duties which the Marine Corps is required to perform in time of peace are as follows:

(a) As marine detachments on board the vessels of the Fleet in full commission.

(b) As guards for navy yards, naval stations, ammunition depots, naval prisons, etc., at home and abroad.

(c) As garrisons for Haiti, Santo Domingo, Virgin Islands, Guam, Peking, Managua, etc.

(d) As a mobile force in training for use on expeditionary duty abroad for the purpose of carrying out the foreign policy of our Government, or for emergency use at home.

(e) As detachments necessary for the recruiting service, for training recruits, and for administrative purposes.

3. The primary war mission of the Marine Corps is to supply a mobile force to accompany the Fleet for operations on shore in support of the Fleet: This force should be of such size, organization, armament and equipment as may be required by the plan of naval operations. Also it should be further utilized in conjunction with Army operations on shore, when the active naval operations reach such a stage as to permit its temporary detachment from the Navy.

4. (a) The secondary mission of the Marine Corps in time of war is to continue the performance of its peace time duties, as outlined in Paragraph 2, immediately above.¹³

As it turned out, the Marine Corps would not get the added men requested—that is from the appropriated figure of 21,000 to 27,400, the authorized figure. By the end of the fiscal year 1922, the Marine Corps would balance out to 21,233, losing 1,757 from the preceding year. The Navy would balance out to 100,211, losing 32,616 and the Army 148,763, losing 81,962.¹⁴ The importance of the CMC Memorandum in February 1922 was not the superficial request for added personnel for the Marine Corps, that would become a national pastime for succeeding Commandants, it was rather the terminology and basis for doctrine that would evolve from it.

In discussing a possible war in the Pacific, the Commandant alluded to the fact that between Honolulu and Manila, the United States had no developed naval base. In a war, such a base would be necessary. "The loss of Guam under this situation would be most serious and its recapture would be necessary to the conduct of successful naval operations in the Pacific." He pointed out that "the advantage of having immediately available a mobile Marine Corps force adequate to conduct offensive land operations against hostile Naval Bases is apparent." He recommended that there be adequate

personnel and material to "maintain in readiness in the United States on the Pacific Coast and on the Atlantic Coast, the nuclei of such Marine Corps organizations as may be necessary to guarantee success in war to any naval expedition requiring a mobile land force. . . ." ¹⁵ The recommendations of General Lejeune of February 1922, in a routine memorandum to the General Board, changed the tactical direction the Marine Corps would pursue in the succeeding decades. He envisioned a mobile force, a force in readiness, and a force capable of offensive operations. This force would not be seizing an undefended or uninhabited advanced naval base. On the contrary, "offensive land operations against hostile naval bases" would be the task facing the Marine Corps. In the final analysis, was this not the birth of the Fleet Marine Force as it is known today?

Maneuvers, Expeditions, Football, and Mail

The Quantico Marine Base having been greatly improved since its founding in 1917, became the home for the Advanced Base Force for the Atlantic Coast in 1920. By 1922, "the discontinuance of the use of the term Advanced Base Force as now applied to organizations of the Marine Corps" was recommended by the CMC.¹⁶ Finally in 1923, "the general term Marine Corps Expeditionary Forces shall be used to designate as a whole, those permanently or provisionally organized units of the Marine Corps which are available for overseas service with the Fleet."¹⁷ The old Advanced Base Force for the Atlantic Coast was accordingly changed to the East Coast Expeditionary Force. It was joined in 1925 by a West Coast counterpart. The West Coast Expeditionary Force became a reality with the addition of Marines from the 4th Marine Regiment recently returned from Santo Domingo.¹⁸ Marines not involved in expeditionary service in Honduras, Nicaragua, Haiti, Santo Domingo, Cuba, and China were involved in less dangerous but just as strenuous work called maneuvers:

The first of these maneuvers took place near the sites of the Battle of the Wilderness. A reinforced brigade with a considerable amount of heavy equipment, including 155 millimeter guns pulled by 10-ton tractors, marched to that area from Quantico. As part of its effort to obtain favorable publicity, President Harding was induced to attend the maneuvers. During the following summer (1922) similar field exercises, but on a larger scale, were

staged at Gettysburg with a small army of about 4,000 marines, armed with all manner of equipment left over from the World War. They even had a platoon of tanks. The Commandant of the Corps commented that the organization was a 'miniature army small but highly trained and powerfully armed.' President Harding again attended the maneuvers. A bid for publicity was made by the re-enactment of Pickett's famous charge in the Battle of Gettysburg. During the following year (1923) the Marines from Quantico went into the Shenandoah Valley for maneuvers. Together with the corps of cadets from the Virginia Military Institute, they re-enacted the Civil War battle of New Market, in which battle the cadets of that institution had formed part of the Confederate forces. The summer maneuvers of 1924 were held in the vicinity of Sharpsburg, Maryland, with more than 3,000 Marines from Quantico and ended with the spectacular reenactment of the Civil War battle of Antietam, carried out as a modern attack. This time the reinforced brigade returned through Washington where it was reviewed by President Coolidge.²⁰

There was no question that the maneuvers were important. The Commandant felt that "these . . . maneuvers offered excellent opportunities in respect to troop and staff training and the testing of equipment and other material."²⁰ They also did no harm to the Marine Corps image with the American public. Aside from the summer maneuvers, the Marine was involved with guarding the mails, winning national rifle competitions, attempting but failing to build a 50,000-seat stadium at Quantico, sponsoring a nationally-known football team that after a good fight was beaten by the University of Michigan in 1923—26 to 6. The overwhelming importance of the decade for the Marine Corps, however, was the experience gained, along with the Navy, from the fleet exercises held during the winters of 1922 and 1923 and the spring of 1925.

Fleet Maneuvers—1922

If, as the CMC said, staff training and testing of equipment were important in the land maneuvers held during the 1920s, then the practical and valuable experience gained in the fleet maneuvers were of inestimable value to the Marine Corps. It is this same period of trial, error, and sometimes disaster, that company and field grade officers obtained the knowledge that would be the key to the successful operations of World War II. Most senior Marine commanders of the 40s, such as Holland M. Smith, Charles D. Barrett, Alexander A. Vandegrift, etc., were participants in the valuable fleet maneuvers of the 1920s. The

first such exercise took place from January to April 1922 when a Marine expeditionary detachment under the command of Lieutenant Colonel Richard M. Cutts participated in exercises held at Guantanamo Bay and at Culebra. These exercises were designed primarily to test the possibilities of landing the 155mm gun and accompanying 10-ton tractor from ship-to-shore in small boats. The 9th Company, 10th Marines, consisting of three officers and 135 men with one 155mm and two 75mm field guns, one 10-ton and three 5-ton tractors, was landed from the USS *Florida* at Guantanamo Bay. "During the period at Guantanamo, close attention was paid to the training of the gun's crews and special details, the hardening of the men, and testing out of all material, and communication."²¹

In March, the company was reembarked in the *Florida* and taken to Culebra. The 35th Company, consisting of three officers and 100 men, joined the force at Guantanamo and took part in the exercises at Culebra. Material was again moved by small boats from ship-to-shore at Culebra and three problems of attack and defense were worked out with the Control Force, U.S. Atlantic Fleet. Lieutenant Colonel Cutts commented that "it has been conclusively demonstrated that artillery up to and including 155mm guns and 10-ton tractors can be transported by battleships and landed in ship's boats."²²

Cutts, however, qualified his recommendation by pointing out that "all conditions must be exceedingly favorable to obtain a successful result at the land place; more favorable than can normally be expected." The favorable conditions referred to implied that there must normally be a calm sea and moderate surf. These ideal conditions that would be rarely found in operations such as this did not make the task impossible. Colonel Cutts recommended that a "lighter" be constructed for transporting heavy guns. "It should not be self-propelled owing to increased weight entailed, and the absolute necessity of grounding."²³

Four years later, Cutts would get to test a troop and artillery lighter, however, it was not self-propelled. In the summary of his report, Colonel Cutts noted that what must have been obvious to officers of the Marine Corps that "in attempting to weigh carefully the advantages and disadvantages of both the attack and defense of a base, by far the greater stress has

come on the defense . . . It is hoped . . . some method and material may be developed to solve the problem of the attack."²⁴ In assessing the exercises of 1922, the Commandant commented that "while the exercises of 1922 were defensive in their nature, they brought out the difficulties of attack in landing operations against hostile opposition and the further presumption that the Marine Corps should be preparing for offensive landing operations in addition to the defensive advanced base work."²⁵

Fleet Maneuvers—1923-1924

In the winter maneuvers of December 1923 through February 1924, the CMC assigned an expeditionary force of over 3,300 officers and men under the command of Brigadier General Eli K. Cole to Fleet Exercise No. IV. The fleet exercises under the command of Admiral Richard E. Coontz, Commander in Chief, U.S. Fleet, were conducted at Culebra and the Canal Zone. The force was divided approximately in half with 1,550 men with 6 155mm guns, 12 75mm guns, and 18 machine guns defending Culebra against attack. This force was known as Marine Corps Expeditionary Force (MCEF), Culebra, P.R. and under the command of Colonel Dion Williams. The defense force at Culebra included engineers, gas and signal troops, plus aviation, balloon service, and anti-aircraft units and a light tank platoon.²⁶



Brigadier General Eli K. Cole, USMC. (USMC Photo #520349)



Brigadier General Dion Williams, USMC. (USMC Photo #529182).

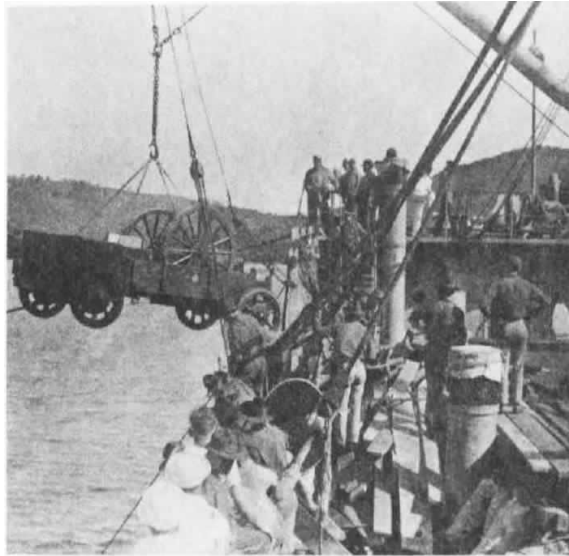
The remaining portion of the expeditionary forces, totalling 1,750 Marines, were known as MCEF, U.S. Fleet, and under the command of General Cole. It comprised a hostile landing force which effected landings in the Panama Canal Zone and at Culebra against Colonel Williams' men. The MCEF, U.S. Fleet comprised the 5th Marine Regiment, a headquarters company, radio service company, gas platoon, naval medical corps personnel, and four Army liaison officers. To say the results of the exercises were unsatisfactory would have to be the understatement of the decade. Landing on the wrong beach, boats being lost for a time, insufficient naval bombardment, transport poorly loaded, etc. were some of the criticisms of what went wrong.²⁷ It was expected that many things would not go right. What was important in the exercises of 1924 was the experience of a large-scale landing and the many recommendations to improve future landings.

If one transport was poorly loaded, the freighter USS *Sirius* was not. The assignment of a detachment of 25 Marines and one officer, the forerunner of a combat cargo officer, made cargo off-loading feasible. Colonel Williams reported "that the loading and unloading of the *Sirius* constituted one of the most valuable lessons of the maneuvers."²⁸ The 1924 exercises were significant in that they demonstrated great problems that were endemic in a ship-to-shore landing at the time. They also pro-

duced the beginning of serious experimentation with landing craft more suitable than the standard ships' boats. Two types of boats were tested, the first of which was a derivation of the British "beetle" boats first used by them at Suvla Bay, Gallipoli in August 1915. The CMC requested the CNO to have the one "fifty foot (50') motor lighter, (Beetle boat), now being built at Norfolk, Virginia, placed on board the USS *Henderson*"²⁹ for testing during the winter maneuvers. The *Henderson*, the transport *Chaumont*, and the *Sirius* were the other ships assigned to the MCEF.

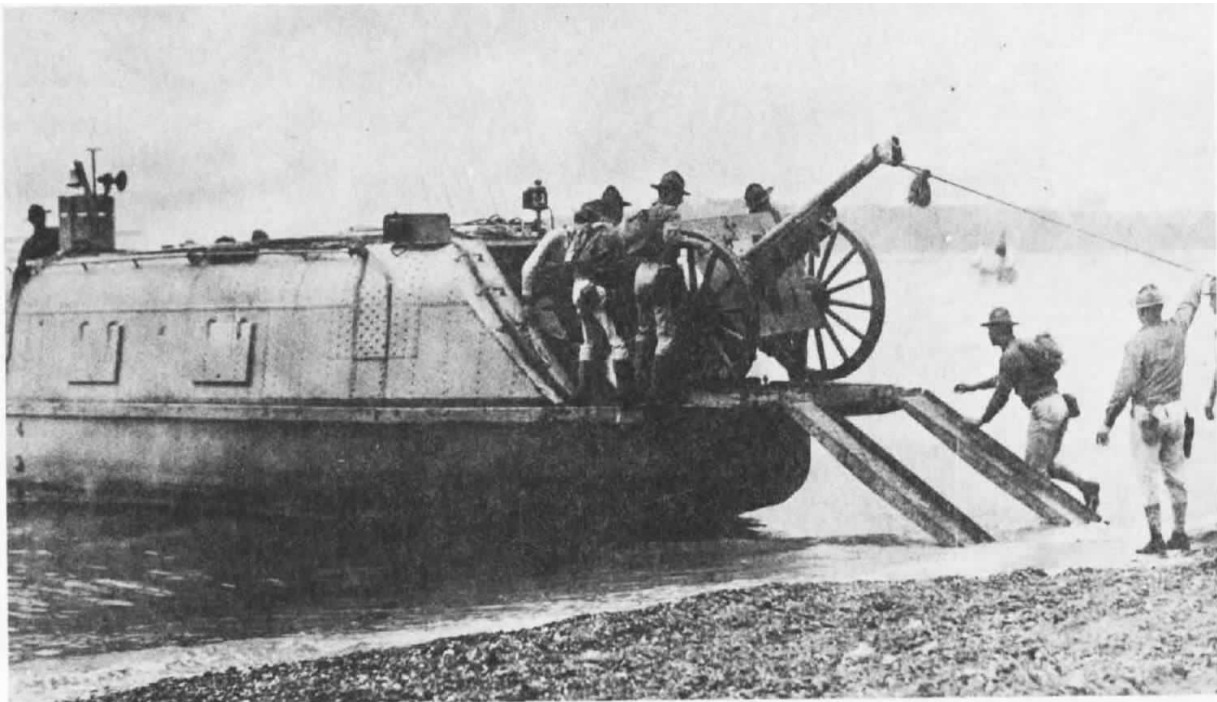
General Cole assessed the value of the "beetle boat," officially designated "Troop Barge A," as follows:

We had with us a so-called "Beetle" capable of carrying a 75mm gun and about 60 men, or 100 riflemen—this is a beginning, but the present design must be altered, if for no other reason than that its stowage on board ship reduces the motor sailers by two—i.e. one 50' and one 40', with landing capacity of 160 men. Some design must be arrived at whereby a transport can carry boats for at least 60 percent of the infantry force on board, with special provisions for artillery, transportation, supplies, etc. These boats should be seaworthy enough to allow them to go 20 miles under their own power, and if possible of a design to



Unloading equipment of the Marine Corps Expeditionary Force at Culebra, Puerto Rico, January 1924. (USMC Photo #516047).

permit their being towed by a minesweeper or a destroyer at reduced speed. A design which will give protection against machine gun fire and which provides for some machine gun fire from the boat is desirable.³⁰



Unloading a 75mm gun from a "Beetle" boat during fleet maneuvers at Culebra, Puerto Rico, in 1924. (USMC Photo #515227).

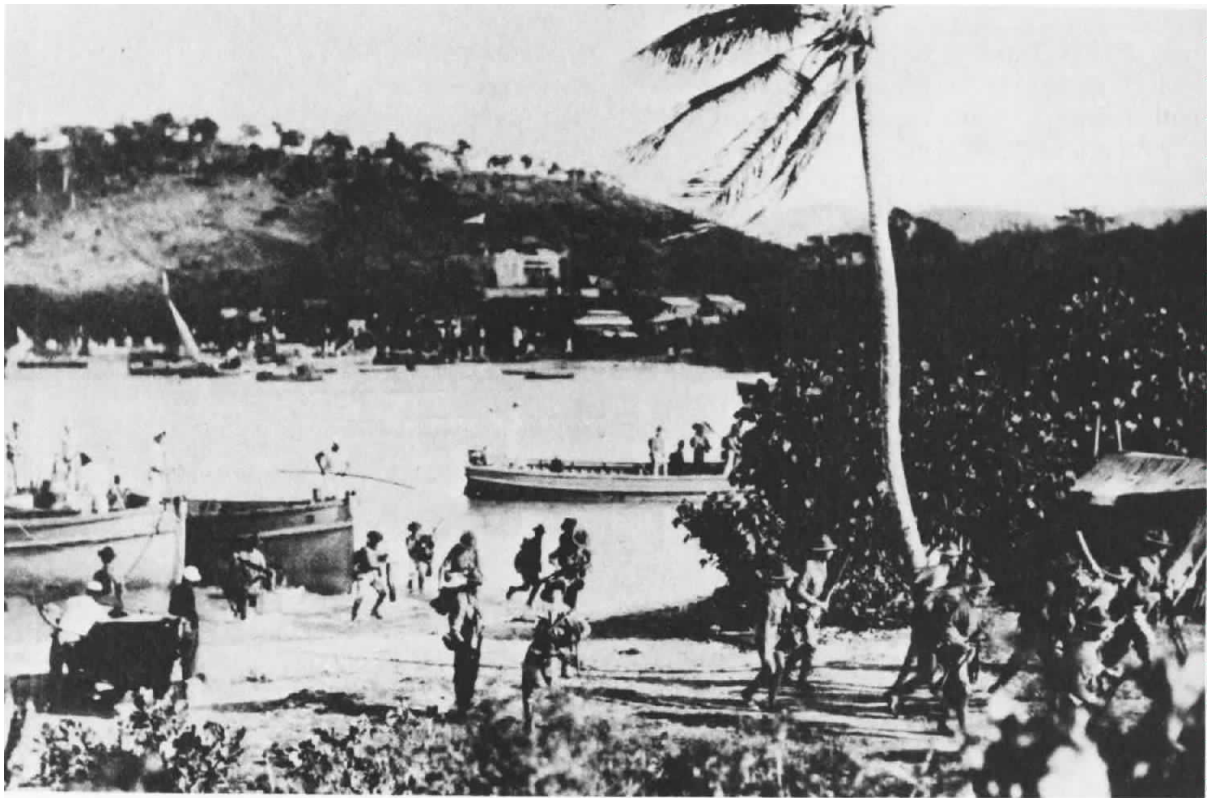


Christie amphibian tank, mounting a 75mm gun, is tested at the Culebra maneuvers in 1924. (USMC Photo #523115).

The other boat tested during the winter maneuvers of 1924 was the "Christie Tank." Unlike the "beetle boat," this test was scheduled to be a great surprise to Colonel Williams' forces defending Culebra. Its appearance was

attributed to Brigadier General Smedley D. Butler. He had been designated to command the MCEF but was replaced by Brigadier General Eli K. Cole on 14 December 1923.³¹ While Butler was still concerned with the exercise, he had corresponded with Walter Christie of the Sun Shipbuilding Company of Chester, Pennsylvania who had built an amphibious tank in 1922. After successful tests on the Hudson River in New York and later tests on the Potomac River, Christie asked the CMC to test his tank in the winter maneuvers of 1924. The CMC accepted his offer and the Commander in Chief, U.S. Fleet, Admiral Robert E. Coontz, gave authorization to the Commander, Scouting Fleet, Vice Admiral Newton A. McCully, to test the Christie Tank.³² General Butler asked Christie and Admiral McCully to keep the use of the tank a secret in order to surprise the defenders of Culebra.³³

The tests were conducted on the Christie tank but no mention of it surprising the defenders of Culebra was noted in the reports after the exercises were over. The CMC noted to the Secretary of the Navy that "two special



Men of the 5th Marine Regiment landing at Culebra, Puerto Rico, during fleet maneuvers, 1924. (USMC Photo #515293).

types of boats for landing operations were used experimentally with interesting, although not decisive results."³⁴ The Christie tank, while successful on rivers, proved unseaworthy. "Even though never perfected, it was the earliest forerunner of the amphibian tractor (LVT) which was to make such a remarkable record in World War II."³⁵

Aloha—Fleet Maneuvers—1925

In April 1925, joint Army and Navy exercises were held off the Hawaiian Islands. The number of Marines employed was a simulated 42,000-man landing force but in reality 1,500 took part. An important factor was an experiment with the landing force staff. The normal school activities in the Field Officers School at Quantico were suspended in March and the students and instructors all became members of the "Blue" MCEF (attacking force) of Exercise #3. The group was commanded by Colonel Robert M. Dunlap, Commanding Officer of Marine Corps Schools. "The exercises . . . were completely successful from the standpoint of the Marines. The plans worked to perfection and the landing was accomplished."³⁶ Colonel Dunlap and his staff participated in a Navy critique at the Marine Barracks, Pearl Harbor from 1 to 4 May. After his return to Quantico, another critique was held there on 1–5 June 1925 emphasizing Marine problems.³⁷ Recommendations in the critique ranged from proper tactical organization to discarding canvas leg-gins. They pointed out the need for experiments to develop a "boat suitable for landing the first waves ashore on a defended coast . . . capable of being carried on transports and capable of being turned out in quantity once war is determined upon. . . ."³⁸

If there was a single unchanging thread in all of the fleet exercises during the 1920s it was the constant recommendation that a "suitable boat" be developed to land the landing forces. Marine participation in fleet exercises was interrupted for the remainder of the decade due to renewed expeditionary commitments in Nicaragua, Haiti, and China and the bandits' return to robbing the mails at home. It would not be until 1932 that the Marine Corps would resume its participation in fleet maneuvers. However, the intervening years would bring more experimentation with landing lighters and see the development of a mission.

During July 1926, a detachment of Marines under the command of Major Maurice E. Shearer was ordered to Hampton Roads, Virginia to make tests of two 50-foot motor lighters, one for landing troops and the other for landing artillery. Both lighters were built by the Navy. The detachment was broken into two platoons, the infantry platoon from the 5th Regiment commanded by First Lieutenant Charles Connette and a section of 155mm artillery from the 10th Regiment commanded by First Lieutenant Melvin E. Fuller.³⁹ The Motor Troop Lighter was a development from a previous design generally known as the "beetle barge." It was a "special purpose" lighter to be used primarily for the landing of the first troop wave under fire. Smaller boats carrying about 100 men were envisioned to be used to carry the rest of the troops as soon as the beach had been cleared. The motor troop lighter being tested was 50-feet long and had about a 14-foot beam. It was propelled by two motors, and was armored against small arms fire. It had the capacity to carry machine guns or 37mm guns for offensive power. The designers had no special provisions for retraction of this boat from the beach but "if the landing is on a beach of such a nature as to permit withdrawal they may be used in landing of subsequent waves, if not, they afford protected dressing stations, or even machine gun nests."⁴⁰

Lieutenant Connette made three different tests of the capacity of the boat. He had loaded as many as 126 men with light marching packs but concluded that "it would not be practical to place so many men in the boat in any kind of rough sea." When tests were made in landing the boat, 100 men with heavy marching packs were loaded on board at the naval base in Norfolk:

The boat proceeded under her own power to Ocean View Beach, a distance of about four miles where landings were made through a very light surf. The boat was put up to the beach with her bow about three feet clear of the water. The landing from boat was made, clearing the boat in two minutes at first trial and about one and one half minutes at the second trial. Had the front hatch opening been larger the boat could have been unloaded in less than one minute. The boat left the beach very easily after being reloaded.⁴¹

The 50-foot lighter for landing artillery was designed primarily for a maximum effort of landing the 155mm gun and its tractor on any stretch of good beach in a moderate surf. However, a secondary purpose was considered in



Series "E" light tank of the 3d Brigade being loaded on board ship at Tientsin, China, in September 1928. (USMC Photo #528193).

using the lighter for landing troops, equipment, and ammunition, "thus securing distribution at beach head, and avoiding congestion at landings which are possible only for ships' boats."⁴² The lighter was not self-propelled and had to be towed by another boat:

It had to be beached stern-to and the gun or vehicle unloaded over a stern ramp. Retracting was easy but the single disadvantage was that the lighter could not be worked in and beached until the beach had been secured.⁴³

In 1927, the Joint Board of the Army and Navy* recognized the history, experience, and affinity for Marine Corps in landing operations and assigned as a general function the responsibility to "provide and maintain forces for land operations in support of the fleet for the initial seizure of advanced bases and for such limited auxiliary land operations as are essential to the prosecution of the naval campaign."⁴⁴ The report further established that "the Marines . . . because of the constant association with naval units will be given special training in the con-

*As a result of command experiences in the Spanish American War, which showed the need for a better U.S. military organization to handle preparation of joint war plans, the conduct of joint training, and control of joint operations, the Joint Army-Navy Board was established in 1903. This body was responsible for advising the civilian secretaries on major policies affecting the two armed services. It was superseded by the Joint Chiefs of Staff organization after May 1942.

duct of landing operations."⁴⁵ This was indeed a milestone in the restatement of the Marine Corps mission.

Marine Corps Schools

"Education has for its object the formation of character"

—Herbert Spencer

Formal military education of officers in the Marine Corps only goes back to 1891 when the School of Application was founded for newly commissioned officers. The initial location of the school was at the Marine Barracks in Washington but subsequently it moved to Annapolis, Port Royal, Norfolk, and finally to Quantico in April 1917. By 1920, and after going through several name changes, the school was known as the Marine Officers' School. By July 1922, it had three separate courses in session—the field officers course, the company officers course, and the basic course. For the first time, all courses or, as it evolved, all schools, were located at Quantico. The Basic School would subsequently be moved to Philadelphia in 1923 but would return to Quantico during World War II.

The curriculum of all of the schools at Quantico, commonly called Marine Corps Schools (MCS) during the 1920s, was naturally Army oriented. This orientation was by design, organized as such, because of the recent experiences in World War I. In addition, all texts, with the exception of Advanced Base writings, used by MCS were written by the Army. Army orientation continued throughout the education of Marine officers in that many senior Marine officers attended the Army War College or the Command and Staff College of the Army.

The Army's schools were excellent but by their nature patterned for the organization, training, equipment, and mission of the Army. The knowledge gained from the Army schools could only serve as good experience to the individual officer and perhaps give him new ideas as to how to improve his own organization, etc. The Marine-Army graduate returning to his battalion, regiment, or some staff duty, found an organization, different in number, equipment, and mission. Mission was the key. What was the mission of the Marine Corps? Marines in the past had had a great diversity of jobs. They had been part of a

land mass war, had seized and defended small islands, fought bandits abroad, had governed whole countries, and had guarded the mails. In addition, the new decade of the twenties brought the further improvement of the airplane, tank, and radio. How would these new developments be utilized in the spectrum of possible missions? How could a school prepare officers to meet the challenges of carrying out any of the above mentioned tasks? The answer came not by a single, simple order but by an evolutionary process. War plans, prepared under the Joint Board of the Army and Navy, provided the impetus of the evolutionary process that ultimately restated the landing operations mission that was the responsibility of the Marine Corps.

With this task in mind, the Marine Corps Schools would have to develop a course of study of their own. The traditional Army courses could not give them the answer, they were not geared for it. One such original work was the study of the technique of small wars. A vast amount of uncorrelated information had accumulated through the years, but no attempt had been made to consolidate it into a form which could be used in passing on this information to other officers. In 1922, Major Samuel M. Harrington, while a student of the Field Officers Course, undertook a comprehensive study of small wars. As a result, he prepared a definitive treatise entitled, "The Strategy and Tactics of Small Wars." * After Harrington left Quantico, Colonel Ben H. Fuller, Commanding Officer of MCS, requested Major Harrington to send him copies of his work on small wars "in order to build up a course strictly [patterned for] Marine Corps work. . . ." ⁴⁶

Colonel Fuller had Harrington's work incorporated into the school's curriculum. This publication presented certain principles of landing operations, the seizure of cities, and operations in the field, as they applied to small wars. It constituted the first consolidated analysis of small wars available for study. Since small wars continued to be an immediate concern of the Marine Corps, Major Harrington's work was the basis for more detailed writing on the subject later. In 1935, a "Restricted"



Brigadier General Samuel M. Harrington, USMC.
(USMC Photo #25101).

book entitled *Small Wars Operations* was published for use within the MCS. In 1940, a revised and corrected version of small wars was published for the Marine Corps by the Government Printing Office for general use, entitled the *Small Wars Manual*.

The curriculum at MCS began to change. As a result of the report of Colonel Robert H. Dunlap, Commanding Officer of MCS, concerning the Fleet Exercises of 1925, the CMC directed that the subject of Overseas Expeditions and Ship-to-Shore Operations be developed and made an important feature of the tactical course in both the Field and Company Officers' Schools.⁴⁷ By 1926, tactics studies emphasized Marine Corps activity in conjunction with the fleet and landing operations. The following subjects became part of the MCS regular curriculum: ⁴⁸

- (a) The strategy of the Pacific Ocean
- (b) Expeditionary forces
- (c) Naval considerations for an overseas expedition
- (d) Embarking and loading troops and supplies
- (e) Hydrographic and meteorological study
- (f) Tactical principles of securing a beachhead
- (g) Landing places (configuration, terrain, and naval artillery support)
- (h) Naval gunfire
- (i) Beach parties
- (j) Shore parties
- (k) Waves
- (l) Naval provisions for disembarkation
- (m) Disembarkation

*Major Harrington had published two articles entitled, "The Strategy and Tactics of Small Wars," *Marine Corps Gazette*, v. 6, No. 4 (December 1921) and v. 7, No. 1 (March 1922). These articles were a condensed version of his definitive treatise.

- (n) Boats
- (o) Night landings
- (p) Command and liaison
- (q) Exercise and debarkation
- (r) Consolidation and exploration
- (s) Withdrawal

The above subjects of instruction, with respect to landing operations, totaled 49 hours as compared to five hours in 1925. The increased part the MCS would play in the development of landing operations was reflected in the schedule for the academic year 1927-28. A complete revision and expansion of the courses tripled the emphasis on landing operations.⁴⁹ MCS added a touch of sophistication with the addition of Army and Navy Officers as instructors or visiting lecturers. Army officers presented topics with respect to their own specialties. Naval officers quite definitely added their talents to the climate whereby landing operations would be made. Some of the lectures were presented by Captain Ralph M. Griswold, "United States Fleet Operations and the Naval Staff"; Captain Dudley W. Knox, "The Strategy



The Commandant, Major General John A. Lejeune, Senator Edward C. Hale, Chairman of the Committee on Naval Affairs, and Brigadier General Eli K. Cole, at Quantico's airfield on 25 March 1925. (USMC Photo #515907).

of the Atlantic"; Commander Raymond A. Spruance, "Naval Intelligence"; Rear Admiral Frank H. Schofield, "The Strategy of the Pacific"; and Commander Howard M. Lammers, "Naval Gunfire in Support of a Landing."

During the academic year 1928-29, the schools were crippled by depletion of the staff of instructors, most of whom were sent to Nicaragua. However, this did not result in a decrease in the emphasis on landing operations instructions.⁵⁰

By 1930, the MCS had become the center for the development of techniques in landing operations. It would be at MCS, in the succeeding decade, that the experience, theory, and findings would be incorporated into a functional manual of doctrine.

Aviation—The Magnificent Men in Their Flying Machines

If ground Marines were making strides in landing operations during the 1920s, the air Marines were making strides in tactics and techniques in aerial warfare. We have seen that through no fault of their own, Marine aviators did not support Marine ground troops during World War I. However, Marine air made up for it after the war. Marine aviation under the command of Major Thomas C. Turner was the only U.S. military air service that actually saw combat during the period between World War I and World War II. Marine air served in Santo Domingo from February 1919 until July 1924, in Haiti from March 1919 to August 1934, and in Nicaragua from 1927 to 1933. Throughout those years, Marine pilots were not only experiencing combat but were also contributing radically new tactics to both ground and air warfare.⁵¹ During this period of the twenties, Marine planes and pilots were sent to the Pacific for the first time when they were assigned to Guam. In April 1927, elements of three squadrons were shipped to Tientsin, China in support of the MCEF sent there. There was no combat action in China—it was centered in Latin America. It was in Santo Domingo in 1919 that Lieutenant Lawson H. M. Sanderson first experimented with dive-bombing.

Sanderson found that he could hit a target more often by pointing his plane toward the target and releasing his bomb from a makeshift rack after diving to a low level (about 250 feet) at an angle of about 45°—the angle

which came to be known as glide bombing in World War II.⁵²

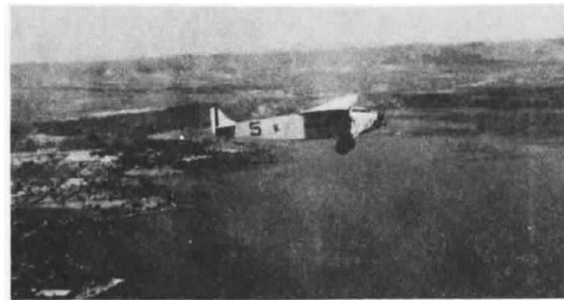
In February 1927, Major Ross E. Rowell, commanding officer of a unit of 6 DHs and 81 men, was directed to support the 5th Marines that had been dispatched to Nicaragua a month earlier. Rowell had further experimented with dive-bombing and made it mandatory in training his pilots. Dive-bombing became a standing operating procedure in Rowell's unit and a first for Marine air. Other services and other countries used dive-bombing developed in their own way. "Most senior Marine aviators doubt that any individual can claim credit for trying to hit his target by aiming his plane at it."⁵³ Also in the late twenties, Major Edwin H. Brainard, who succeeded Turner as Officer-in-Charge of Marine Aviation, managed to obtain the first plane the Marines ever had which was built to transport cargo, the three-engine Fokker transport. In 1927, Brainard himself delivered the Fokker to Nicaragua for use. After two other Fokkers arrived, Marine cargo operations made military history in flights made and pounds of freight carried.⁵⁴ In another first of sorts, a Marine patrol pinned down by Nicaraguan bandits spotted several Marine planes. The patrol laid out on the ground panels of cloth indicating the direction and range of the enemy and asked for an air attack. The subsequent bombing and strafing attack became the first known instance of an air attack being directed by ground troops.⁵⁵ This tactic became a fundamental element of close air support later on.

At home, in July 1926, Marine aviation was preparing for its second class of aerial observa-

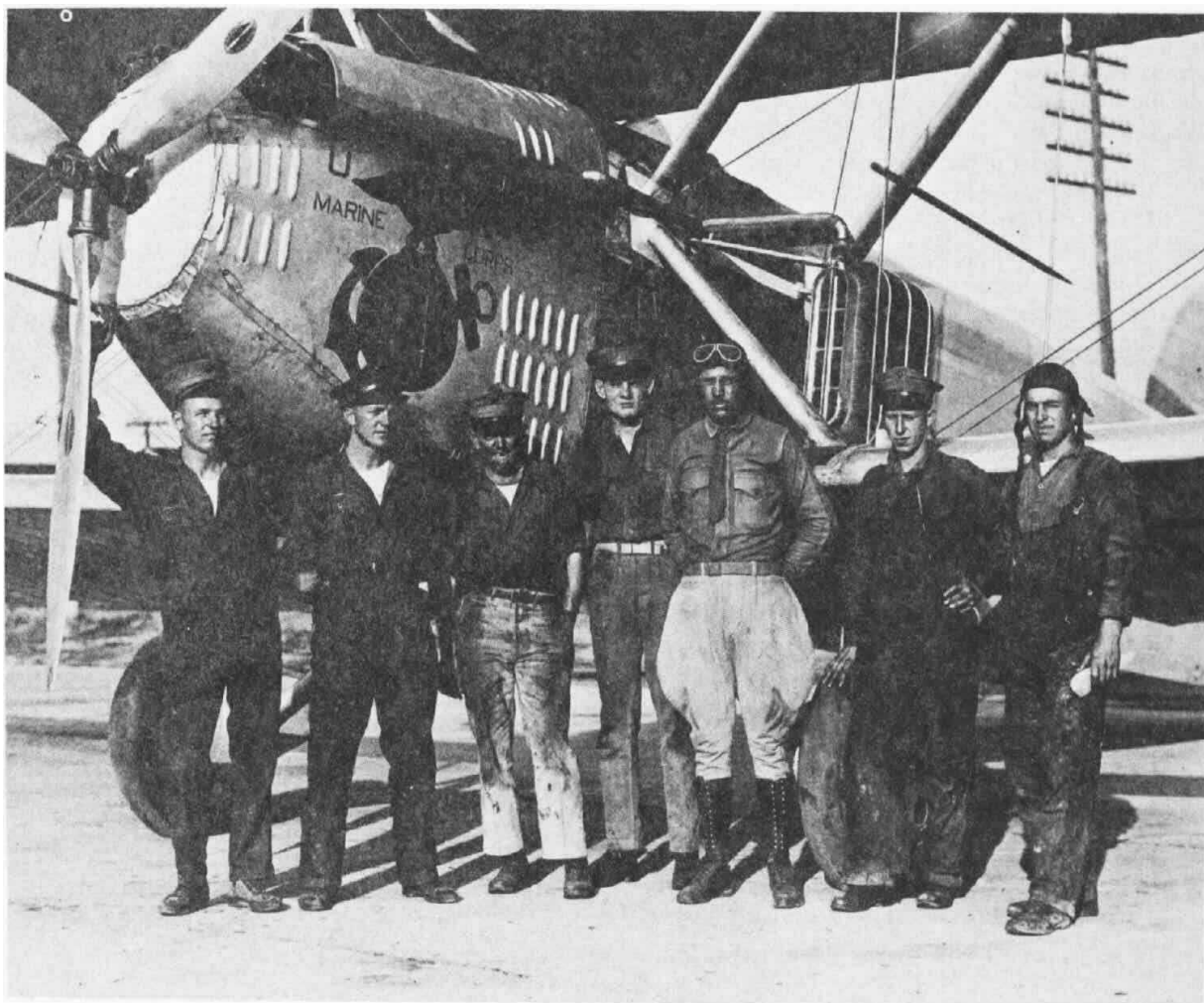
tion. The Commanding Officer of the School of Aerial Observation located at Quantico had requested the Brigade Commander, MCEF to direct cooperation of the Fifth Regiment with the Observers School in an air-ground communication problem. He considered the practice essential in rounding out the aerial observer for work with the infantry. In addition to their normal duties with expeditionary forces, Marine aviators participated in national air races, aerial surveys, night flying, exhibition flying, and other flight training.

By 1930, Marine Corps aviation was firmly entrenched in two major installations and three overseas bases located as follows:

Aircraft Squadrons, East Coast Expeditionary Force, Marine Barracks, Quantico
Aircraft Squadrons, West Coast Expeditionary Force, Naval Air Station, San Diego
Detachments with 2d Brigade, Managua, Nicaragua
Detachments with 1st Brigade, Port-au-Prince, Haiti
Detachments with Naval Station, Guam, Mariana Islands



An early Marine transport plane, the Fokker TA-2, gaining altitude over Lake Managua, Nicaragua, on 9 April 1930. (USMC Photo #530022).



Lieutenant Christian F. Schilt and his crew standing in front of a DT-2 torpedo bomber at New York in October 1925. Lieutenant Schilt was awarded the Medal of Honor for actions in Nicaragua in 1928. (USMC Photo #515971).

CHAPTER III

ECONOMY AND WITHDRAWAL

The whole decade of the 1930s was a period that tested the American Republic as America underwent the hardships of the Great Depression during the administrations of Presidents Herbert Hoover and Franklin D. Roosevelt. The Republican era ended with the defeat of Hoover for reelection in 1932 and the start of the Roosevelt Democratic era in March 1933. The Great Depression was caused in part by the market crash that began after Labor Day 1929 with the heaviest selling on "Black Thursday," October 24th. Two weeks after Black Thursday the average price of all common stocks was off 40 percent. Between 1929

and 1932, General Motors dropped in price from \$73 to \$8 per share and United States Steel from \$262 to \$22; the general average was down 90 percent. The Gross National Product dropped from \$104 billion in 1929 to \$59 billion in 1932.

A historian of the era, Professor William E. Leuchtenburg, stated that:

... by 1932, the unemployed numbered upward of thirteen million. Many lived in the primitive conditions of a preindustrial society stricken by famine. In the coal fields of West Virginia and Kentucky, evicted families shivered in tents in midwinter; children went barefoot. In Los Angeles, people whose gas and electricity had been turned



Major General Ben H. Fuller, 15th Commandant of the Marine Corps, 9 July 1930 to 28 February 1934. (USMC Photo #308343).



Major General John H. Russell, Jr., 16th Commandant of the Marine Corps, 1 March 1934 to 30 November 1936. (USMC Photo #H-6252).

off were reduced to cooking over wood fires in back lots . . . At least a million, perhaps as many as two millions were wandering the country in a fruitless quest for work or adventure or just a sense of movement.¹

The unemployed in America during a 10-year period ranged from 1.6 million or 3 percent of the labor force in 1929 to 12.8 million or 25 percent of the labor force in 1933. By 1939, unemployment dropped by 3 million to 9.5 million or 17 percent of the labor force. To add to the economic woes, labor unrest produced in 1937 the worst strike year in the period between the stock market crash and the end of World War II. The depression hung like a pall over the entire country and the world.

When Franklin D. Roosevelt became President in 1933, his energies were concentrated on domestic economic issues. On the international scene, however, the picture was equally confused and threatening and, of course, he had to conduct the foreign relations of the United States along with the domestic policies of the "New Deal." Fast moving events in Europe and Asia became the stepping stones to World War II. Adolph Hitler was appointed Chancellor of Germany a month or so before Roosevelt became President. The militarists had tightened their hold upon Japan and the Japanese war lords began to encroach upon North China. In a hope of new Russian-American trade and the promise from the Soviets not to interfere in the domestic affairs of the United States, Roosevelt granted diplomatic recognition to the Soviet Union in November of 1933.

Americans in the meantime had become disillusioned and resentful of the European powers who had reneged on the World War I debts. "Isolationists were convinced that the United States should have little traffic with those faithless foreigners; the experience with the debts strengthened the tendencies toward economic nationalism and isolationism."² America's fear of becoming involved in another European war was reflected in the legislation of the middle 1930s. Strong isolationist sentiment was apparent in the Johnson Debt Default Act of April 1934, which prohibited loans to foreign governments that had defaulted on their obligations to the United States. The passage of the Neutrality Acts of 1935, 1936, and 1937 were designed to prevent incidents that might lead to war.

The historian Charles A. Beard possibly summed up American sentiment in 1935 when he wrote:

We tried once to right European wrongs, to make the world safe for democracy. Even in the rosiest view the experiment was not a great success . . . [Isolation] may be no better, for aught anyone actually knows. But we nearly burnt our house down with one experiment; so it seems not wholly irrational to try another line.³

In view of the international uncertainties of the 1930s the Beardian logic was difficult to refute.

President Roosevelt continued the withdrawal policy even in Latin America. He did so not because we were disillusioned with the South Americans, but because he dedicated the nation to "the policy of the good neighbor." The American historian George Harmon Knoles said that "Americans were not in an imperialistic, aggressive mood in the 1920s and 1930s. The United States henceforth expected to treat the nations of the world and particularly of the Western Hemisphere as good neighbors; that is to say, a policy of noninterference in the private affairs of those states, yet standing ready to be helpful."⁴ Secretary of State Cordell Hull at a meeting of the Seventh Pan-American Conference at Montevideo, Uruguay in December 1933, proposed in the Convention on the Rights and Duties of States, under Article 8, that "no state has the right to intervene in the internal or external affairs of another."⁵ In effect, America was renouncing the right of intervention in the Western Hemisphere. The United States soon had an opportunity to match words with deeds. In May 1934, the United States abrogated the Platt Amendment, which had granted America the right to intervene in Cuba since the early part of the century. By 15 August 1934, the 826-man 1st Marine Brigade in Haiti under the command of Brigadier General Louis McC. Little sailed for home thus ending the long period of American intervention in Latin America.⁶

With the end of intervention abroad and the problem of domestic unemployment reaching its peak at 12.8 million persons, the middle part of the decade of the thirties became most trying for all of the armed services. The Navy Department had received an appropriation of only \$309 million for fiscal year 1935. Out of this figure, the Marine Corps of 17,248 officers and men, received a little over \$21

million.⁷ The Marine Corps figure included everything, from pay to general expenditures, which meant clothing, fuel, and the like. A low budget for the armed forces, who were after all preparing for future wars, seemed reasonable enough to the average person. The war fought in the thirties by Americans against starvation and unemployment was by far more real to the average American than any future enemy.

All service budgets were scrutinized again and again. The Navy Department had already undergone an agonizing time because of cut backs resulting from the naval disarmament treaties of the 1920s. The Marine Corps' turn came during 1931 and 1932 in the form of an examination of its organization and establishment. The General Board of the Navy undertook a year-long study to determine the need for, and size of, the Marine Corps in war and peace. The board examined every aspect of the Marine Corps, reviewing its history, missions, aviation, and its place in the war plans of the nation. The CMC, Major General Ben H. Fuller, answered fully all questions of the General Board. The pivotal question basically was to show the necessity for an appropriated strength of 21,000 men. It had been feared by the Marine Corps that the statutory peacetime strength of 27,400 would be reduced. This reduction was opposed by the Chief of Naval Operations (CNO)* in his review of the General Board report to the Secretary of the Navy. He stated that the "present authorized strength of 27,400 should be continued as the legally authorized peacetime strength in order to allow expansion to this number without the necessity of legislation during a period of strained relations."⁸

The Marine Corps survived the examination and the Secretary of Navy, Charles F. Adams, approved the report of the General Board and the CNO's comment on 2 March 1933, which kept the statutory peace strength of the Marine Corps at 27,400. While the appropriated strength of the Marine Corps remained at 21,000 during the decade, the actual average yearly strength was approximately 17,700 men.⁹

*The CNO office was created in May 1915. It was a continuation of the office of Aide-for-Operations founded in 1909. The CNO is charged with the operations of the fleet and with the preparation and readiness of plans for its use in war. It was quite natural that the CNO would comment on the strength of the Marine Corps inasmuch as it would affect the Marine strength for the fleet.

Marine Corps Schools of the Thirties

Rear Admiral L. E. H. Maund, Royal Navy, when speaking of the Gallipoli-Dardanelles Campaign, stated: "It had imagination, it had the promise of great strategic gains; while the reasons for its failure could easily be discerned and had to do with lack of technique, material and belief in this form of warfare; shortcomings that could all be overcome."¹⁰ So it was at MCS that formalized instruction in landing operations continued into the crucial decade of the thirties. A development of a mature doctrine of landing operations had been made. The basis was the realization at the policy-making level that an assault of defended beaches was feasible and that, indeed, future wars would demand the execution of such operations. Concurrently, as relaxation of tension in China and Nicaragua gradually released Marines in substantial numbers, the various elements of the developmental process began to complement each other.¹¹ The MCS began to devote a major effort to the study of landing operations and by the end of 1939, out of a total of 1,092 hours of instruction, 455 hours or 42 percent pertained to some aspects of landing operations.¹²

Brigadier General Randolph C. Berkeley became the first general officer to command the Marine Corps Schools in August 1930. Under General Berkeley's tenure, great strides were taken to resolve many problems concerning landing operations. It was in 1931, a banner year for MCS, that a special committee from the Field Officers School, under the direction of Colonel Charles F. B. Price, started work on a tentative text for "Marine Corps Landing Operations." Other members of the committee, who were also instructors at the Field Officers School, were Majors Charles D. Barrett and Lyle H. Miller.¹³ In April 1931, Price asked General Berkeley to assign Barrett and Miller full-time to the preliminary work of preparing the tentative text. Price stated that "the most important part of the preliminary work will be rather extensive practical experiments to determine the capacity for personnel and equipment of all of the various types of boats in use in the Navy which might be employed in actual operations."¹⁴ General Berkeley concurred and appointed a board to "develop and write the text for Landing Operations and Small Wars."¹⁵ In addition to appointing Barrett and Miller, Berkeley added Major

Pedro A. del Valle and Lieutenant Walter C. Ansel, USN.¹⁶ The board became known as the Landing Operations Text Board.

The CMC realized the importance of a naval officer as member of the Landing Operations Text Board as he "doubtless will be in a position to obtain informally naval thought on questions of naval doctrine which may arise. . . ." ¹⁷ Concurrent with this board, other boards such as the Experimental Landing Lighters Board and a Curriculum Board were all doing yeoman work at MCS. As a result of the Curriculum Board's recommendations, a considerably revised schedule was worked out for the following school year, 1932. Greater emphasis was placed on landing operations, despite the fact that the scheduled number of hours already assigned to these courses had been increasing steadily. Another recommendation of the board was to have MCS instruct and solve problems on the basis of Marine Corps organization and material.¹⁸

The changes that took place in the instruction and curriculum at MCS from 1931 to 1933 undoubtedly affected the Landing Operations Text Board of 1931. By 1933, there was no publication completed or printed from the work of this board on a landing operations text. The board's work was, however, the first effort to develop a modern landing doctrine and it provided a basis for the initial landing manual published a year later. Some of the work accomplished by the board, and used later in the 1934 manual, was studies on units of measurement for computing cargo requirements for military equipment, establishment of standard boat capacities for landing operations based on specific data, and whole chapters on signals, engineering, boats, air support, and artillery.

In April 1932, Brigadier General James C. Breckinridge succeeded General Berkeley as Commandant, Marine Corps Schools (CMCS). General Breckinridge, no stranger to MCS, having previously served as CMCS from 1929 to 1930, encouraged the changes taking place. In July of 1932, Lieutenant Colonel Ellis Bell Miller joined MCS as assistant to General Breckinridge. In two years, Breckinridge and Miller brought MCS to the forefront not only as the training center for Marine officers but as the intellectual/academic center for the Marine Corps. Miller reported into MCS from the Naval War College where, after completing the Senior Course, he had remained to be an instructor in strategy and tactics in

its Senior and Junior Classes. In addition to the Marine Corps Schools, Miller was a graduate of two schools of the Army, Fort Leavenworth School of the Line and General Staff and the Army War College.¹⁹ He consequently brought a great amount of service school experience with him. With the encouragement of General Breckinridge, Miller not only disagreed with the manner in which the school was run but the content and subject matter of many of the courses. He challenged the entire structure upon which the education of Marine officers was based.²⁰

The first drastic action came when all the courses developed by the Army schools were discarded. These courses, and accompanying problems, had long been the basis for the curriculum, but in order to make the problems work, the Army Tables of Organization had to be used. Instructors were directed to rewrite all their material and gear it to Marine Corps Tables of Organization and Equipment.

The changes at MCS were duly noted by the CMC when he summarized this small revolution in his annual report to the Secretary of the Navy in 1933.²¹ Some of the changes he noted were:

(a) School problems are now based on Marine Corps units and equipment.



Major General James C. Breckinridge, USMC. (USMC Photo #521272).

(b) Certain personnel were designated to prepare text books and pamphlets to cover fields of service for which no Marine texts existed.

(c) Support by naval gunfire and other naval agencies was developed in greater detail, and a closer relationship with the Naval War College was maintained.

(d) More effort was placed on the development of comprehensive courses on landing operations and small wars.

In addition to the curriculum changes, the content of a course in the study of landing operations was revised. The Dardanelles-Gallipoli Campaign formed an important part of the background in research on this subject. During the academic year 1932-1933, each student was issued a copy of the British official history of the Gallipoli Campaign. This book, *Military Operations, Gallipoli*, being the latest and most accurate publication on the subject, was used as a source book. The Gallipoli Course was organized "to acquaint the students with the Gallipoli Campaign; to train them in military research; and to provide the Schools and through them the Marine Corps with the material of value on a campaign which is in many respects of the type we are expected to be experts in."²²

Concurrent with the Gallipoli studies, the students from the Field Officers School at MCS, in conjunction with the Naval War College, worked together on what had come to be called the Advanced Base Problem. The Advanced Base Problem series, 10 in all, started during the school year 1931-1932. Each year a theoretical problem of defending or seizing a base in a given area was considered by both groups of students. The Pacific area was the predominant choice of areas for such problems as evidenced by problems dealing with Dumanquilas in the Philippines, Truk, Palau Islands, Guam, Saipan, and Tinian.²³ The Advanced Base Problems afforded the Marine Corps Schools a chance to present its solutions at the Naval War College and most importantly, the problems awakened an understanding of the importance of the establishment of organized fleet landing units.

Colonel Richard M. Cutts, on the staff of the Naval War College, had written to Colonel Miller at MCS and Major General John T. Myers, Assistant to the Commandant, proposing that a Marine base force be placed in the operating forces of the fleet:

... as a fleet unit, with as much consideration given to it by the Navy as other fleet types, such as cruisers, destroyers, or carriers ... establishment of the fact that naval overseas operations are

doomed to failure lacking a proper Naval Advanced Base Force operated by the Marine Expeditionary Force ... and the establishment of the fact that this necessary base force cannot be created by the Marine Corps alone; it requires the active assistance of the Navy Department necessitating appropriations and constructive action.²⁴

Colonel Miller replied that "it was becoming clear that a complete reorganization and reequipping of forces was necessary to carry out Marine Corps missions in support of the fleet."²⁵ In an article in March 1931, Lieutenant Commander E. W. Broadbent, USN, who was one of the first naval officers to serve at MCS (1926-28) stated:

It is the mission of the Marine Corps to support the fleet. But likewise it will be the mission of some part of the fleet to support the Marine Corps landing force. When two forces of different arms have a mutual task, there must be mutual understanding, common thought, study, preparation, and training. With these, if the time ever comes when the Navy needs more and better bases, the Navy and the Marines can take and hold them.²⁶

In August 1933, Major General John H. Russell, Assistant to the Commandant, suggested to the CMC the discontinuation of the old "expeditionary force" and the creation in its stead of a new body to be called either the Fleet Base Defense Force or the Fleet Marine Force. The Fleet Marine Force, or FMF, as it was to be called, was an old idea of General Russell's and he crystallized his ideas, Miller's, Cutts', Myers', and many others when he insisted that "this force should be included in the fleet organization as an integral part thereof, subject to the orders, for tactical employment, of the Commander-in-Chief, U.S. Fleet."²⁷ After approval by the CMC and the appropriate authorities of the Navy Department, the Secretary of the Navy, Claude A. Swanson, signed General Order No. 241 on 7 December 1933 designating the FMF from the "force of marines maintained by the Major General Commandant in a state of readiness for operations with the Fleet."²⁸ The FMF replaced the East Coast and West Coast Expeditionary Forces and the Commanding General, FMF and his staff were initially stationed at Quantico.²⁹ This force provided the Navy with a "type-force" of reinforced infantry with the specific mission of executing landing operations.

As significant as was the creation of this force, the fleet did not yet possess the capability of actually seizing bases and thus projecting itself across the oceans. The FMF needed a basic doctrine to guide its training, and the

fleet elements which were to be involved in landing operations required guidance as to how they would perform their tasks in concert with the landing force. Between 1919 and 1933, the Joint Army-Navy Board had promulgated several manuals prescribing methods for Army and Navy cooperation in joint overseas expeditions. The latest was published in 1933.³⁰ The directives contained in the manual were concerned with the techniques and agencies for cooperation and with the respective functions of each service in the conduct of joint operations. But a manual of landing operations was still lacking. By late 1933, plans to work on a landing manual by MCS were interrupted by the mobilization of the 7th Marines for Cuban duty and the consequent drain on personnel. The CMCS recommended to the CMC that all classes be discontinued at the schools and that students and staff alike devote all time and effort towards the production of a landing operations manual. The Commandant agreed and, on 30 October 1933, directed the CMCS to prepare a manual on landing operations as expeditiously as possible and to commence work not later than 15 November. Classes were discontinued on 14 November and the staff and students began work on the manual.³¹

The Manual

How the finished product—the manual—was written and the multiple changes in title it went through is in itself a story almost as interesting as the contents.

Students & instructors wrote out chronologically itemized lists of the things to be done from the inception of a landing operation to the tactical completion of a landing operation.

A committee of nine was appointed to consider the itemized lists and draw up a consolidated list embracing all recommendations and to group them under headings. Each member of the committee of nine formulated his own list, based on the results of his study of all lists submitted.

A committee of five then studied and further consolidated the lists from the committee of nine which resulted in a rough outline for the contents of the manual.

The prophetic nature of the rough outline was dramatically exemplified by an examination of the six elements into which the landing operation was subdivided: (1) Command relationships, (2) Naval gunfire support, (3) Aerial support, (4) Ship-to-shore movements, (5) Securing the beachhead, and (6) Logistics. These functions, together with communications, formed the basis to a greater or lesser degree of amphibious doctrine today.

On 9 January 1934, officers from the FMF, HQMC, and Quantico participated in a conference with respect to the outline. The outline was based on experience, both personal and that culled from reports of landing operations, experimentation, and the evolution of instruction and problems at the MCS. Some 70 officers from lieutenants to brigadier generals, including four Navy officers and one Army officer, attended the meeting. Following the conference, the manual was divided into various parts and responsibility for writing these parts was assigned to various committees. The bulk of the manual was grouped under three general areas: (1) Tactics, which included landing and defense of bases, prefaced by a general discussion of landing operations and the purpose of the manual. The committee chairman was Major John Marston and subcommittee members, Major DeWitt Peck and Major Charles J. Miller. (2) Staff functions, logistics, and plans and orders. Committee chairman, Major Harold L. Parsons and subcommittee members, Majors Wilbur Thing, Samuel A. Woods, and Thomas E. Thrasher; and (3) Training; chairman of committee, Lieutenant Colonel Calhoun Annum. In addition, separate parts on naval and aviation activities were prepared by Lieutenant Commander Clifford G. Richardson, USN, Chairman of the Naval Committee, and Captain Harold D. Campbell, Chairman of the Aviation Committee.³² On 28 March 1934, committees that had been at work in earnest submitted to the CMC the first parts of the manual. By 13 June 1934, the remaining chapters were submitted.

The sequence of development of the manual was as follows:

Tentative Manual for Landing Operations of 1934 was used at MCS during the 1934-35 school year in mimeograph format; it was not given outside distribution.

By July 1934, the title was changed to *Manual for Naval Overseas Operations* and published by the Navy Department.

15 May 1935, a board headed by Lieutenant Colonel Charles D. Barrett was formed for revision of the 1934 edition of the manual.*

*General Alfred H. Noble considers Barrett (later a major general) to have been an outstanding original thinker who almost singlehandedly wrote two-thirds of the Tentative Manual based on the mass of uncoordinated material assembled at the time. "He [Barrett] was the man who put pencil to paper." Gen Alfred H. Noble ltr to Director, M.C. History, dated 3 April 1971 (Historical Division, Headquarters, U.S. Marine Corps).



Major Charles D. Barrett, USMC. (USMC Photo #519539).

9 July 1935, a revised manual with photographs, better sketches, etc., approved by the CNO on 25 May 1935, was distributed by the CMC throughout the Marine Corps, Navy, and outside agencies with a "Restricted" classification. This 1935 edition became the first widely-distributed *Tentative Landing Operations Manual*.³³

On 15 June 1936, a board headed by Lieutenant Colonel Keller E. Rockey, along with Lieutenant Colonels Archie F. Howard and Alfred H. Noble, was convened to revise the 1935 edition of the manual.

On 26 May 1937, the CMC sent to the CNO the report of the board on revisions.

A revised manual was issued, but not for general distribution, on 21 June 1937 under the new title, *Landing Operations Doctrine, U.S. Navy 1937*.

On 15 May 1938, a board headed by Lieutenant Colonel Allen H. Turnage was convened to make revisions on the 1937 edition of the manual. Other members of the board were Lieutenant Colonel Alfred H. Noble, Captain Francis M. McAlister, and Quartermaster Clerk Percy J. Uhlinger.

On 25 November 1938, CMC authorized destruction of the 1935 manual, technically the *Landing Operations Doctrine* of 1937, with the issuance of *Fleet Training Publication (FTP) #167*, also known as the *Landing Operations Doctrine, U.S. Navy 1938*.³⁴

In May 1941, Change #1 to FTP #167 was issued based on experiences of the Fleet Landing Exercises and material developments up until 1941. This edition was the guide for the Guadalcanal landings in August 1942.

Change #2 to FTP #167 was issued 6 days before Guadalcanal, on 1 August 1942.

Change #3 was issued in August 1943, based on further experiences in the Solomons and in North Africa. It was used during the remaining part of World War II.

The Contents

Command relationships as described in the *Tentative Manual* dealt with the organization of the landing force as well as with command procedures. It was here that the inherent naval character of the landing operation was defined. The force was to be commanded by a Navy flag officer. The task force would have two main components: the landing force, made up of Fleet Marine Force units, and the naval support groups consisting of the Fire Support Group, the Air Group, the Covering Group, and the Transport Group. The specific responsibilities of the various commanders during all phases of the operations were enumerated and the principle of parallelism of command, subject to the overall authority of the amphibious force commander, was defined. With these arrangements one of the major causes of the Gallipoli disaster was overcome. Finally, it insured that naval forces would organize so as to be responsive to the needs of the landing force.³⁵

The *Tentative Manual* recognized that a landing force in the assault followed the same pattern as conventional offensive action but it also recognized the fact that the over-the-water movements of troops complicated the problem of fire support. In developing a solution to this problem, an effort was made to adapt naval guns to missions normally performed by field artillery. The problems of fire direction, the nature of projectiles, magazine capacity, and the muzzle velocities and trajectories of weapons were all considered, and a sound doctrine for the effective delivery of naval gunfire was developed.

As a result of the many problems associated with the delivery of naval gunfire in close support of assault troops, the writers of the *Tentative Manual* explored the possibility of employing aircraft for this purpose. As a result, the initial doctrine for close air support evolved. This doctrine provided for both visual and photographic reconnaissance, air defense, and airborne fire support during the final run of landing craft to the beach. This doctrine will be discussed in the succeeding chapter.

To no one's surprise, the part that had the greatest impact on the art of landing operations was the ship-to-shore movement. The manual recognized that the ship-to-shore movement embraces the most critical phase of the landing operation and that it was more than a simple ferrying operation. The text provided a technique for the waterborne deployment of the landing force for battle in accordance with the principles of fire and movement. For securing the beachhead the manual defined the techniques which would permit the landing force to survive during the period between sole reliance on seaborne fire support and the landing of its own artillery. It spelled out in detail the procedures for establishing communications promptly between echelons ashore and those afloat, and it addressed itself realistically to the complex problems of supply and services required by the landing force.

In the field of logistics, the *Tentative Manual* emphasized the overriding importance of tailoring all loading to the requirements of the landing force; the ships would be loaded in a manner which would respond precisely to the tactical needs of the landing forces as they assaulted the hostile shore. The practice of stowing as much materiel into a ship as it would hold had to be replaced by a technique that gave careful consideration to the requirements of the troops on the beach. Recognizing this requirement and the related requirement for standardizing procedure for embarkation of the landing force, the Marine Corps developed and included in the manual instructions on embarkation. These instructions included the preparation of embarkation forms, loading plans, and set forth the technique of combat unit loading of assault ships.

The theory contained in the manual was specifically tested in the annual fleet training exercises from 1935 through 1941, conducted at Culebra, Vieques, the island of San Clemente near San Diego, and in 1941 at New River, North Carolina. These exercises refined landing force staff work, stimulated the evolution of landing craft and radio equipment, underscored the need for improved gunfire and air support doctrine, and gave practical experience to the forces involved.³⁶

The *Tentative Landing Operations Manual*, initially published in 1934, is perhaps the most important contribution to military science the Marine Corps had made to date in the 20th century; certainly it is one of the landmarks in its history.

Boats, Lighters, and Amphibians

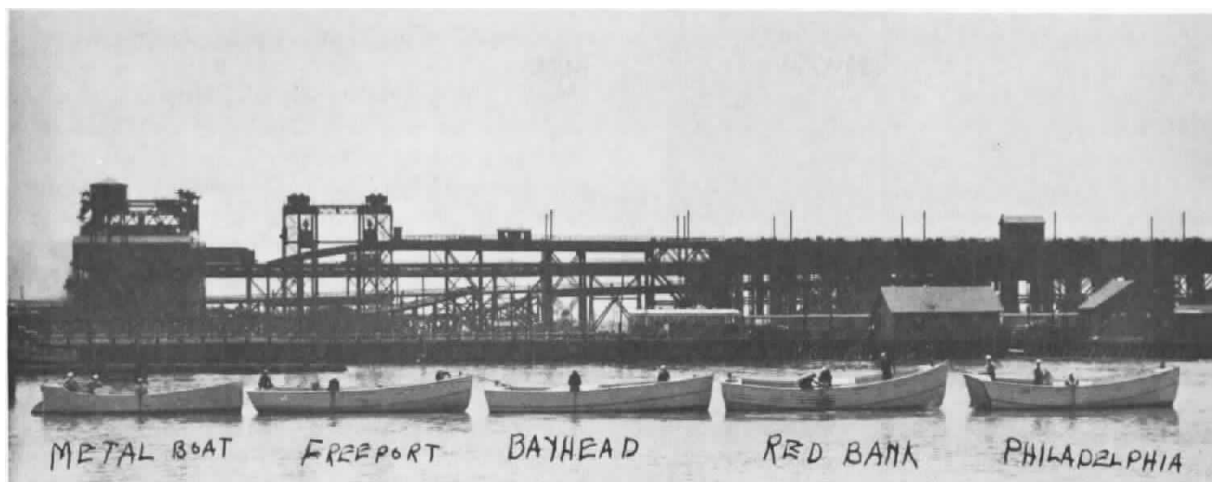
Along with developments in doctrine and technique there was a corresponding demand for specialized equipment to make the landing operation effective. In 1933, the CMC established a Marine Corps Equipment Board composed of 11 members who served on an additional duty basis. The primary assigned duty of the board was to recommend the types of equipment best suited to the needs of the Marine Corps. The Marine Corps was a "user" rather than a "developer" of equipment at this time. By 1937, the board, gaining momentum and importance in pressing the Navy Department to buy and develop landing boats, expanded to 20 officers assigned on a full-time basis.

The bureau within the Navy Department responsible for designing, producing, and paying for all ships and boats was the Bureau of Construction and Repair, later renamed Bureau of Ships in 1940. This bureau was of course struggling to make maximum use of the little money the Navy had in the 1930s. The development of landing boats was the least important item on its agenda. Tenacity and persistence on the part of the Marine Corps plus a few sympathetic naval officers in Construction and Repair had to be the primary reason for the success of the development of landing craft prior to United States entry into World War II.

The problems to be solved in procuring special landing craft needed in landing operations fell into three categories: (1) Landing boats—used as carriers of troops from ship-to-shore; (2) Lighters—used to carry tanks and trucks; and then finally (3) Amphibians—as thought of in the 1930s as a fire support weapon only, that is, an amphibious tank. By January 1937, the importance of obtaining suitable landing craft became apparent when the Secretary of Navy established a "Department Continuing Board for the Development of Landing Boats for Training Operations." The board membership included representatives of the CNO, CMC, Bureau of Construction and Repair, and Bureau of Ordnance.³⁷

I—Landing Boats

In an effort to explore the suitability of existing commercial craft for landing operations, the Navy, at the request of the Marine Corps, agreed to test a variety of small boats in consonance with available funds. In 1935,



Experimental surf boats lined up at Hampton Roads, Va., on 2 May 1938. (USNAS, Hampton Roads Photo #5773).

bids were advertised by the Bureau of Construction and Repair with specific details as to weight and length of the boats desired. The bureau had in mind the available deck space, handling facilities, and davit strength of the ships of the 1935 Navy. Undoubtedly, these specifications hampered some bidders as only nine replies were received by the Navy. Out of these nine, five boats were accepted by the Bureau and the Marine Corps Equipment Board for testing at Cape May, New Jersey, in the summer of 1936. The boats were not superior to conventional boats, although they included some improved features and would consequently be tested again in May of 1938 at Hampton Roads, Virginia. Four of the five boats tested were modified fishing boats used by Atlantic Coast fishermen for many years and named after the ports from which they came, Bay Head, Red Bank, Freeport, and Philadelphia. The fifth boat, a metal surf boat, was a separate commercial entry. In the May 1938 tests, none of the boats was satisfactory. The following winter, during fleet exercises at Culebra, three of the five boats, Bay Head, Red Bank, and Freeport, were again tested. "The modified fishing craft still had serious drawbacks. Owing to their exposed rudders and propellers they tended to dig in when retracting. They were so high forward that Marines debarking had to drop 10 feet from the bow to the beach. They were, moreover, all unsuitable for lowering and hoisting."³⁸ In the light of the drawbacks revealed by tests, the "Bureau of Construction and Repair undertook the construction of a boat embodying all the best features of the fishing craft. This

was the beginning of a long and unsuccessful effort by the Bureau to develop a satisfactory landing craft. The 'Bureau Boat' in various forms showed up regularly at Fleet Landing exercises from 1939 through 1941, but efforts to get the 'bugs' out of its design were abandoned in 1940."³⁹ Along with the "Bureau Boats" that were being tested until 1940, experiments were carried out utilizing standard Navy ships' boats. The standard boats, designed for other purposes, also proved unsuitable for



Red Bank surf boat taking on board 18 Marines it had landed during trials in May 1938. (USNAS, Hampton Roads Photo #5762).



Philadelphia surf boat landing 18 Marines during May 1938. (USNAS Hampton Roads Photo #5758).

beaching operations. They lacked speed and maneuverability and were extremely difficult to handle in the surf.

In 1937, Andrew Higgins, a New Orleans boat builder, reentered the picture of solving the problem of a suitable landing boat. Higgins reentered because he had previously endeavored to interest the Navy and the Marine Corps in the Eureka boat that he invented in 1926. He had visited Quantico in 1934 to interest the Equipment Board in the Eureka boat, but with little or no money left in the Bureau of Construction and Repair nothing definite could be accomplished at the time. In the 1935 bidding for test boats, Higgins declined to submit a bid to the bureau. In October of 1936, Higgins wrote to the Navy offering his Eureka as a troop landing craft. The Eureka was a boat of promising design. It had a special shallow draft for the use of trappers and oil drillers along the lower Mississippi and Gulf Coast. It had a tunnel stern to protect the propeller and a special type of bow, called by Higgins a "spoonbill," which enabled it to run well up on low banks and beaches and retract easily.⁴⁰

Timing was again poor and the Navy was unable to purchase the boat. In 1937, Commander Ralph S. McDowell, who was respon-

sible for landing craft development in the Bureau of Construction and Repair, wrote to Higgins inviting him to visit the Navy Department for further discussion of his boat. Higgins visited McDowell in Washington shortly thereafter and spent one week working with him on redesigning the Eureka boat. Higgins was soon given a proprietary contract to deliver one boat, which he did within 30 days, to Norfolk. In the spring of 1938, McDowell and other members of the Continuing Board went to Hampton Roads and tested the Eureka boat. Everybody was pleased with the way it performed. The Eureka made its first maneuver appearance at Fleet Exercise 5 in 1939 where it competed against several bureau boats and the by-now venerable fishing craft. Again it surpassed all the tests but the Commander Atlantic Squadron recommended that the Training Squadron of the Atlantic Fleet, a counterpart of the Continuing Board, give further tests to the Eureka boat.⁴¹

These tests did produce good results and by 1940 money for naval procurement was beginning to be more plentiful. By about September, transports and converted merchant ships replaced warships as troop carriers in landing exercises. These ships were equipped with davits capable of handling 36-foot boats and as the Eureka of 36-foot length "had twice the capacity of the 30-footer then in service and could make the same speed without an increase in horsepower, the Navy decided to adopt the larger as standard."⁴²

After many years, the Navy and particularly



Higgins boat, 1937. (USMC Photo #526331).



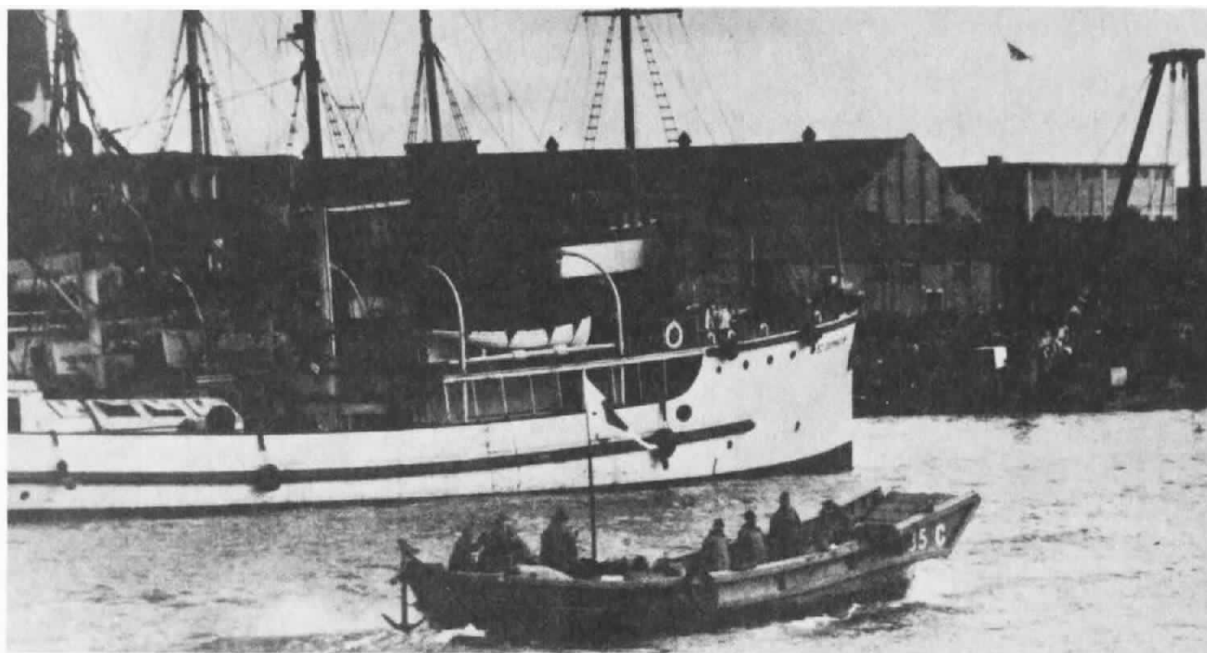
Re-embarking in a Eureka landing boat during joint Army-Marine exercises at New River, N.C., in July 1941. (USMC Photo #529125).

the Marine Corps had the landing craft that they wanted. The only existing drawback of the 1940 Eureka was the difficulty in unloading troops and supplies from the fairly high sides. On another visit to Quantico in April 1941, Higgins was shown a picture of a Japanese landing craft with a ramp in the bow by Major Ernest E. Linsert, Secretary to the Equipment Board.* Linsert and Brigadier General Emile P. Moses, President of the Equipment Board, asked Higgins to determine the possibility of installing a ramp in the bow of his 36-foot Eureka. Higgins was quite enthusiastic and agreed to make a prototype, converting a standard Eureka into a ramp bow at his own expense.

*The Japanese landing boat with ramp, shown Linsert, was part of a group of photographs that were enclosures to a report prepared by then First Lieutenant Victor H. Krulak, Assistant R-2, 4th Marines in 1937 entitled, "Report on Japanese Assault Landing Operations, Shanghai Area 1937." Lieutenant Krulak's report stated that "during the landing operations the Japanese forces were seen to employ a large number of boat types." Of one type, Landing Boat Type "A" (see photograph), Krulak observed "these boats are the only ones of the entire group which were obviously designed to negotiate surf and shallow beach landings." Krulak Report (Historical Amphibious File, Breckinridge Library, Quantico, Va.).

The next month, May 1941, Brigadier General Charles Barrett, Director of Plans and Policies at Headquarters, sent Linsert to New Orleans to see how Higgins was coming along with the prototype Eureka. Linsert tested the Eureka boat with a ramp on Lake Ponchartrain. Tests were also made with a truck and with 36 Higgins' employees running on and off to simulate embarkation and unloading of troops. Linsert also inspected a 45-foot steel lighter with a ramp bow that had been originally built for the Colombian government for custom duties. A bulldozer was carried in the lighter and of course the possibilities of using this type of craft as a tank lighter became immediately apparent. Linsert reported to General Barrett that both Higgins' boats were quite acceptable.⁴³

On the recommendation of the Navy Department Continuing Board, a special board of Marine Corps and Bureau of Ships officers was appointed to conduct official acceptance tests. With General Moses as senior member, the board carried out the tests during the first week in June. The ramp bow craft passed with flying colors. Thus was born the precursor of the LCP (Landing Craft Vehicle, Personnel).



Japanese ramp landing boat Type "A", photographed in Shanghai harbor by 1st Lieutenant Victor H. Krulak, USMC, in 1937. (Photo courtesy of Lieutenant General V. H. Krulak).

II—Lighters

The design of a successful tank lighter proved as difficult a process as did the development of the personnel landing craft. As mentioned in the previous chapter, a 50-foot lighter for landing artillery was tested in 1926. While it would be used during the intervening years, the lighters were not satisfactory to the Navy or Marines because they were not self-propelled and had to be towed by another boat.



Forty-five foot artillery lighter (Artillery Lighter "B") unloading a 5-ton tractor at Quantico in 1935. Troop Barge "A" is shown in the background.

The advantage of the 50-foot lighter, however, was the fact that it had two parallel hinged ramps in the stern and it could be beached successfully stern-to.

In 1935, at Quantico, a plan evolved to use a standard 50-foot motor launch for landing light vehicles and artillery with the help of a readymade rig, called Boat Rig A. In the 1935 fleet exercises at Culebra, the motor launch and rig was tested. It proved so top heavy that it nearly capsized in a moderate swell. The experience was accordingly written off.⁴⁴

The importance of the the size of lighters varied with the tank size and weight at the time. In three separate years, 1935, 1939, and 1941, the modification of existing lighters had to be considered with the adoption of different size tanks. In 1935, the Marmon-Herrington Tank, a 9,500-pound model, could be carried by a 38-foot lighter. A 38-foot lighter was built at the request of the CMC and delivered for testing in the fleet exercises in 1938. The lighter was self-propelled and had sufficient speed. Another lighter, built by the Navy, was a 40-foot type used in FLEX 5 in the winter of 1938-1939. This lighter was equally successful. Both the 38- and 40-foot lighters were proved suitable for landing tanks and motor vehicles. By 1939, the Marine Corps had given up on the Marmon-Harrington

tank and began testing the Army's 15-ton tank. The Navy accordingly produced a new 45-foot lighter capable of carrying one Army or two Marmon-Harrington tanks.*

The lighter was tested in FLEX 6 in the winter of 1940. It proved adequate during the exercises. Subsequent doubt arose as to the seaworthiness of this lighter in another exercise when one of the lighters sank after an Army tank shifted to one side in a moderate sea. The next year, in May of 1941, the Navy Continuing Board turned again to Higgins of New Orleans. Higgins had on hand a 45-foot boat and was asked to convert the boat to a tank lighter. In a short time he made the converted tank lighter available to the Navy for examination.**

During the summer of 1941, the 45-foot Higgins lighter was tested during exercises at New River, North Carolina. Concurrent with these happenings, the Bureau of Ships had built a 47-foot lighter which was used in the fleet exercises at Culebra in 1941. Major General Holland M. Smith, the landing force commander, reported after the exercises that: "the Bureau type lighters are heavy, slow, difficult to control, difficult to retract from the beach and equipped with an unpredictable power plant."⁴⁵ By the fall of 1941, the tank lighter program had again changed direction with the introduction of the newly developed Army 30-ton medium Sherman tank. The 45-foot lighters, Bureau of Ships or Higgins, could not do the job for the new 30-ton tank. The Secretary of Navy directed the Bureau of Ships to remedy this deficiency. "Accordingly, in December ex-



Andrew J. Higgins, New Orleans boat-builder, with Sergeant Pearla McKinney at Camp Lejeune in October 1943. (USMC Photo #500883).

isting tank lighter contracts were changed to provide 50-foot lighters in lieu of the 45-foot Higgins and 47-foot Bureau types still to be built. Both Higgins and the Bureau produced designs of 50-foot craft. Before any deliveries could be made President Roosevelt, at a White House Conference on 4 April 1942, directed the procurement of 600 additional 50-foot tank lighters by 1 September for the North African operation."⁴⁶

Tests of the Bureau of Ships' lighter and the Higgins' lighter were held near Norfolk in May 1942 with 30 tons of cement blocks in each lighter.⁴⁷ The Army sent observers to the test inasmuch as the initial projected use of the winning lighter would be in an Army operation. General Smith reported that the Higgins entry proved vastly superior as everybody who knew the two boats predicted. In fact the Navy lighters failed to complete the tests. As a result of these overall tests, the Bureau of Ships notified all yards making their model to shift to the Higgins design. Thus the Higgins 50-footer became the standard tank lighter of the Navy, the prototype of the LCM (Landing Craft, Mechanized).

III—Amphibians

The United States' first modern experience in amphibians, that vehicle that can operate on land and water, was the Christie Tank.*

*See Chapter II.

*Major John Kaluf, Secretary to Equipment Board in 1938, recalls "when the futility of the Marmon-Herrington tank was pretty well demonstrated, the Equipment Board requested the procurement of an Army 15-ton tank for try-out purposes. Brigadier General Holland M. Smith, Director of Operations & Training, HQMC, told me to stop asking for such heavy items as a 15-ton tank and confine yourself strictly to the 5-ton limit. He said that the Navy General Board had told him in no uncertain terms that the Navy was never going to lift more than 5 tons." (The Navy's insistence on a 5-ton limit, at the time, had to do with the boom capacity on board Navy ships.) Col John Kaluf ltr to the Director, M.C. History, dated 19 January 1971 (Historical Division, Headquarters, U.S. Marine Corps).

**The Commandant stated "Higgins was first approached in the matter of converting the 45-foot boat into a tank lighter on May 27 [1941] and the tank lighter was ready for test yesterday 5 June [1941]. This man is certainly a wonder." MajGen T. Holcomb memo to Adm H. Stark, dated 6 June 1941, File A-111-JCW (Record Group 80, National Archives).



Lieutenant General Holland M. Smith in October 1944. (USMC Photo #38219).

After tests had found the Christie Tank unseaworthy off Culebra in 1924, it was subsequently rejected as a military vehicle. It was never purchased by the U.S. Government and plans of the particular test model were sold to Japan.

Great Britain, already credited with the development of the tank to the extent that it could be used on the battlefield, also developed the first amphibious combat vehicle, the Medium D Tank. This tank was completed after the 1918 armistice. The intention of the British was to give a tank sufficient characteristics to get across a body of water, yet at the same time retain, as far as possible, the performance of the land tank. This characteristic of British design progressed with land tank development and shows that the British had no interest in true amphibian vehicles but preferred flotation devices for land tanks.⁴⁸

The United States and particularly the Marine Corps, in the early 1930s, concluded that tanks, if landed close to the early assault waves, would prove valuable in the assault and even justify less artillery strength. The *Tentative Landing Manual* of 1934 pointed out that "the difficulties of transport and movement from ship-to-shore indicate that only light tanks can be used in the landing opera-

tion. These may be land tanks or amphibious tanks."

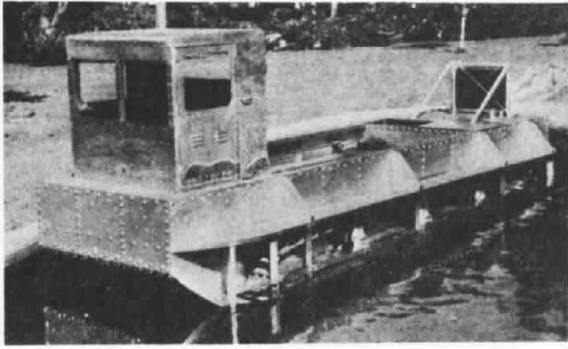
Ironically, the predecessor of the modern amphibian tractor was designed as a nonmilitary vehicle for the rescue of downed aviators and hurricane victims in the Florida Everglades. The developer of the craft was Donald Roebling, son of financier John A. Roebling and grandson of Colonel Washington Roebling, builder of the famous Brooklyn Bridge. It was John A. Roebling who, after hearing about and witnessing several devastating hurricanes, became aware that while he could not do anything about the hurricanes, he perhaps could help victims of such calamities. The victims, many of whom were in the otherwise impenetrable reaches of the Okeechobee region, needed help. John A. Roebling agreed to finance the project to build a vehicle that in his words, "would bridge the gap between where a boat grounded and a car flooded out." His son Donald became the developer and the father ultimately spent \$118,000 for two amphibious tractors.

In designing such a vehicle, Donald Roebling felt that two things were absolutely essential, buoyancy and one means of propulsion for both land and water. For buoyancy the vehicle had to be constructed as light as possible and weight would be of prime concern. In the early 1930s, aluminum was a comparatively new product and Roebling believed that this material would be the key to the weight problem. In combination with the weight problem was the problem of locomotion on both land and water. Roebling believed that the paddle-tread track principle, similar to early paddle-wheel steamships, could be made to work.* Roebling, along with members of his technical staff, Earl De Bolt, Warren Cottrell, and S. A. Williams, started to build the Alligator. The first vehicle, completed in 1935, was 24 feet long and weighed 14,350 pounds and was powered by a 92-horsepower Chrysler industrial engine**

The performance of the first vehicle was a disappointment, because while it achieved 25 mph on land it slowed to a speed of only 2.3

*It was this paddle-tread principle that Roebling had patented in 1938. He turned over his patent, #2138207, to the government for universal use and without fee during World War II.

**The first model was immediately made available to the U.S. Coast Guard and American Red Cross for rescue work. There is nothing to indicate that either agency accepted it at the time, perhaps because of the initial performance of the vehicle.



Donald Roebling's original 1935 Alligator. (Photo courtesy of Sun Photos, Clearwater Sun, Clearwater, Fla.).

mph when run in water. Such performance indicated that the conventional straight tractor cleats set straight across the tracks were extremely inefficient for water propulsion. The first model was rebuilt and completed in April 1936. The cleats of the tracks were changed to a diagonal setting across the chains to push the water out from the sides, weight was reduced by 2,240 pounds, and a new 85-horsepower Ford V8 engine was installed. After testing, the vehicle's land speed was reduced to 18 mph but more important, water speed was more than doubled to 5.45 mph.⁴⁹

A second modification in September 1936 reduced the weight by 310 more pounds and land and water speed slightly increased. The third modification, completed in 1937, resulted in the most significant changes of all. The length of the vehicle was decreased by four feet with corresponding decrease in track length and weight and a new track was installed. The new track was the highlight of the 1937 model. All tractors had used bogie and idler wheels, necessary appurtenances which normally supported the track and kept it moving properly. Roebling had not particularly liked this arrangement. He designed a chain with built-in roller bearings, with a smooth steel channel around the track contour for the rollers to ride on while supporting the weight of the vehicle. He replaced idler wheels with idler blocks and replaced straight cleats with curved cleats. The result of these changes was an increase in maneuverability and water speed. The water speed of this model was 8.6 mph while the land speed remained at 18 to 20 mph. The vehicle was reduced by 3,100 pounds and now weighed 8,700 pounds.

It was this 1937 model that appeared with

picture and short story in the 4 October 1937 edition of *Life* magazine that would excite the Marine Corps' interest in an amphibious tank. Rear Admiral Edward C. Kalbfus, Commander, Battleships, Battle Force, U.S. Fleet, showed Major General Louis McCarty Little, then commanding the Fleet Marine Force, the *Life* magazine article with pictures of the strange vehicle. General Little was quick to grasp its potentialities and sent the article to the Commandant, Major General Thomas Holcomb. Holcomb in turn, passed it along to the Equipment Board at Quantico.⁵⁰ The board, headed by Brigadier General Frederic L. Bradman, dispatched Major John Kaluf, Secretary to the Board, to Clearwater to see the vehicle perform and to consult with Roebling. Kaluf recalls that "Roebling had a vehicle fully operational at the time and put it through every kind of test that I could dream up. I took about 400 feet of 16mm movie film which I brought back with me. The Board liked what they saw and gave it a very favorable boost."⁵¹

In May 1938, the Commandant cited this opinion in recommending to the Navy that "steps be taken to procure a pilot model of this type of amphibious boat for further tests under service conditions and during Fleet Landing Exercise No. 5." Both the Continuing Board and the Bureau of Construction and Repair endorsed the recommendation unfavorably on the grounds of economy. Funds were so limited at this time that the few dollars available were being spent on the development of landing boats.⁵²



1937 Alligator model undergoing tests at Clearwater, Fla. Major John Kaluf, Secretary to the Equipment Board, was the Marine observer. (Photo courtesy of Sun Photos, Clearwater Sun, Clearwater, Fla.).

Again the Marine Corps persisted and again the few sympathetic naval officers at the bureau came through with a small appropriation to have Roebling start work on a model to be used by the military as an amphibian tractor. Three months earlier, in October 1939, General Moses, President of the Equipment Board, visited Roebling at his shop in Clearwater, Florida and persuaded Roebling to design a model for such use.⁵³ By January 1940, Roebling had completed the new design and in May, the new amphibious tractor was completed. This model, built from the ground up, incorporated all of the experience gained from the previous work including a further weight reduction to 7,700 pounds. The vehicle was 20 feet long, 8 feet wide, and had a maximum climbable grade of a 55 degree slope. Its water speed was between 8 and 10 mph and in the open sea, or when landing on a beach through surf, the 1940 "alligator" was more seaworthy than a normal boat of comparable size. It would not sink, even with its 7,000-pound cargo compartment full of water; nor would it capsize in a dive into deep water off a 6-foot seawall.⁵⁴ This new model was powered by a 95 hp Mercury V8 engine. Two vertical hand levers between the driver's knees controlled the steering clutches, and without cargo, the vehicle drew less than three feet of water.

With more money in sight, the Bureau of Ships contracted with Roebling to build one other vehicle of the same general design of the May 1940 model but powered with a 120 hp Lincoln-Zephyr engine. On 26 and 27 August 1940, Brigadier General Moses, with a party of Marine and Navy officers from the Bureau of Ships, inspected the model being built. The inspection was highly satisfactory and afforded an opportunity to make minor adjustments and modifications in the construction within the terms of the contract.⁵⁵ After the model was completed and given a final testing at Clearwater about the 14th of October, it was delivered to Quantico the first week in November.

Under the watchful eye of the CMC and a large party of high ranking officers of the Army and Navy, the October model travelled 29 mph on land and 9.72 mph in water. The Quantico demonstration was successful but had its bad spots, including the model being bogged down in the Chopawamsic Creek.⁵⁶ Further tests were scheduled.

During Fleet Exercises Number 7, in Janu-

ary and February 1941, the last such FLEX before World War II, Captain Victor H. Krulak of the 1st Marine Brigade staff with two other members of his test crew, Sergeant Clarence H. Raper and Corporal Walter L. Gibson, put the "alligator" through various tests. Lieutenant General Krulak recalls that he went on board the USS *Wyoming* to request Major General Holland M. Smith to ask Admiral Ernest J. King, Commander, Atlantic Fleet, who was visiting Culebra, if he wouldn't like to ride in the "alligator." Admiral King said he was pressed for time but yes, he would go for a short ride. General Krulak recounts the following:

Admiral King came aboard and no one else volunteered to come and he didn't ask anyone else. It was just the Admiral, an aide, Raper, Gibson, and I in the "alligator." We cruised about a little bit and I said, "Now let me show you what it can do on this coral, Admiral." He looked at his wristwatch and said, "I don't have very long." "I said, "it will just be a minute." I was just going to show him how we go right over the coral but we didn't. The track broke and we were in water about 4 feet deep. We weren't going to get off the coral and no boat could get to us. We were about 50 yards from the beach, so he climbed over the side of the boat with his aide, waded ashore and was picked up in a vehicle and taken to the town of Dewey and went about his business. My impression was that I don't think the Admiral ever forgot the "alligator."⁵⁷

The "alligator" measured up in every respect with two exceptions. Its aluminum construction was not considered rugged enough for hard military use and the track would not endure the abrasive effect of sand and salt water.⁵⁸ The tractor was so impressive in every other respect, however, that the Navy negotiated a contract with Roebling to redesign the tractor to include military characteristics with all steel construction in place of aluminum.* Roebling called on the Food Machinery Corporation (FMC) for help in redesigning the "alligator." The corporation had plants in nearby Dunedin and Lakeland and had made components for Roebling's earlier models. Mr. James M. Hait, then Chief Engineer of the Peerless Division, organized an engineering group to redesign the "alligator." Using all steel construction and changing from riveting

*On 29 August 1940, the M.C. Equipment Board recommended to the Bureau of Ships that future amphibian tractors be of welded steel construction. President, M.C. Equipment Board ltr dated 8 October 1940 (Box 2, Record Group 65A-4939, Federal Records Center, Suitland, Md.).

to welding, considered by Hait to be essential to the main design, two prototypes were built in the Riverside, California plant of FMC.⁵⁹ The Navy awarded FMC a contract for an official design and further development of the "alligator," now officially dubbed LVT (Landing Vehicle Tracked) (1). FMC was also awarded a contract for 200 more LVTs and the first one came off the assembly line in July 1941.

By the end of World War II, 15,654 LVTs were built. FMC's three plants in Lakeland, Florida and Riverside and San Jose, California built 11,251 LVTs. Borg-Warner Corporation of Kalamazoo, Michigan, St. Louis Car Company of St. Louis, Missouri, and Graham-Paige Motors Corporation of Detroit, Michigan built the remaining 4,403.⁶⁰

As an anecdote to the building of the first 1,225 LVT (1)s, it was asked of Donald Roebing why all the Roebing alligators were built exactly 9 feet, 10 inches wide. Roebing gave, while not a scientific answer, a humorous reply when he said that the first military model was built in his own shop on his estate. The model produced was 9'10" wide simply because

his shop doors and gate posts on the grounds were only 10 feet wide.*

In order to observe and report on the construction of the LVTs, Major George W. McHenry was appointed Resident Inspector of Naval Material at the Food Machinery Corporation plant at Dunedin, Florida in February 1941.⁶¹ To work on and train in operating the new LVTs scheduled to come off the assembly line, an Amphibian Tractor Detachment was organized 2 May 1941 at Dunedin, Florida with Major William W. Davies as commanding officer. Four other officers and 33 enlisted men made up the detachment. This detachment served as a nucleus for training men in LVT operation. After training, officers and men were then assigned to the newly organized letter companies of the 1st Amphibian Tractor Battalion. By 16 February 1942, the battalion was complete with four companies, including an Headquarters and Service Company, and was part of the 1st Marine Division.⁶²

*It should be noted that after the war, President Harry Truman presented the Medal for Merit to Donald Roebing for his outstanding services to the United States. (See Appendix H for citation). Robert L. Longstreet, *Clearwater News*, 27 March 1947.



LVT(1)s being tested by the Marine detachment at Dunedin, Fla., on 18 September 1941. (USMC Photo #529506).



An experimental observation aircraft, the Pitcairn OP-1 autogiro, at Quantico on 14 November 1932. (USMC Photo #514902).

Marine Aviation in the Thirties

Marine aviators in the early thirties were busy racing and testing aircraft. Captain Arthur H. Page and Lieutenant Vernon M. Guymon set a record for sustained blind flight, flying from Omaha to Washington, D.C., in July 1930. Captain Page, piloting an O2U from a sealed, hooded cockpit, flew the instrument flight of about 1,000 miles. Captain Page, who earlier in the year won the Curtiss Marine Trophy Race, an annual event for service seaplanes, died in a crash in September of 1930. He was the only military entrant in a race for the Thompson Trophy at Chicago.⁶³ In another part of the world, Major Francis P. Mulcahy and other Marine aviators in November 1932 had tested a strange rotary-wing machine, called the Pitcairn autogiro which was designated the OP-1. Mulcahy reported that the autogiro's chief value in expeditionary duty was in "inspecting small fields recommended by ground troops as landing areas, evacuating medical sitting cases, and ferrying of important personnel."⁶⁴ Technically, lack of weight-lifting capabilities and high gas consumption were two of the major shortcomings of the OP-1 of 1932.

Organizational changes brought on by the creation of the FMF in December 1933 raised the importance of Marine aviation. In 1935, the Aviation Section at Headquarters, Marine Corps was separated from the Division of Operations and Training and became an independent section under the CMC. On 1

April 1936, it became a division under a Director of Aviation. The director of the new division served as an adviser to the Commandant on all aviation matters and as a liaison officer between the Marine Corps and the Navy's Bureau of Aeronautics. Unlike the ground units of the Marine Corps which drew their equipment from both the Army and Navy, in addition to supplying much of their own, Marine aviation depended solely on the Navy for its aircraft and all other aviation gear.⁶⁵ By 1939, FMF ground forces were organized in two units, the 1st Brigade based on the east coast at Quantico and the 2d Brigade based on the west coast at San Diego. Each brigade had the support of a Marine aircraft group of corresponding numerical designation. In addition, FMF aviation further boasted a scouting squadron (VMS-3) based in the Virgin Islands.⁶⁶ By the end of the decade, the authorized strength of Marine Aviation, FMF, was 124 officers, 15 warrant officers, 56 aviation cadets, and 1,120 enlisted men.⁶⁷

The Genesis of Close Air Support

As the Marine Corps developed the various techniques contributing to a smooth landing operation, it had to give more consideration to the means of providing early fire support for landing troops. In the absence of the artillery support available in conventional land warfare, the Marine Corps evolved the unique technique of close air support (CAS). The term "close air support" referred to the attack of ground objectives located close to friendly units. By its very nature, Marine Corps aviation had long specialized in the development of techniques for this type of support for ground forces. This had always been the principal reason for the existence of Marine Corps aviation as a separate branch of naval aviation. The development started shortly after World War I when various Marine aviators pursued with vigor any proposed technique which would enable them to deliver bombs on a ground target with an acceptable degree of reliability and accuracy. Marine Corps participation in "small wars" in various foreign countries from Haiti to China provided invaluable experience in supporting small ground units under difficult conditions of terrain and climate. These experiences were consolidated and reduced to written form in the

1934 edition of the *Tentative Landing Manual* and subsequent editions.⁶⁸

The manual considered the vulnerable concentrations of troops in transports, landing boats, and on the beach and called for a three-to-one numerical superiority over the enemy in the air. In the 1938 edition, *FTP-167*, the ratio was increased to four-to-one, primarily to wipe the enemy air threat out of the skies and secondarily to shatter the enemy's beach-head defense and to cut off his reinforcements.⁶⁹ More important, emphasis was placed on the direct assistance aviation could give the troops such as guiding the landing boats to the beach, laying smoke screens, and providing reconnaissance and spotting for naval gun-fire and artillery. The kernel of CAS lay in the importance of rendering direct fire support to the landing force until the artillery was ashore and ready to fire.

After the landing, the challenge became that of applying the fire power of Marine air to destroy specific enemy frontline positions without endangering nearby friendly troops. Refinement of this skilled technique as we know it today was slow because of many factors. An excellent analysis of this refinement of techniques is contained in Volume I, *History of USMC Operations in World War II*:

There was so much for pilots to learn about rapidly developing military aviation that close air support had to take its place in the busy training syllabus after such basic drill as aerial tactics, air to air gunnery, strafing, bombing, navigation, carrier landings, and communications and constant study of the latest in engineering, aerodynamics, and flight safety.

Also, whenever newer, faster, and higher flying airplanes trickled into the Marine Corps in the

lean thirties, they were found to be less adaptable for close coordination with ground troops than the slower, open cockpit planes which supported the patrol actions of Nicaragua. In Nicaragua the aviator in his open cockpit could idle his throttle so as to locate an enemy machine gun by its sound, but in the maneuvers of 1940 pilots flashing by in their enclosed cockpits found it difficult to see what was going on below or even to differentiate between friendly and "enemy" hills. In Nicaragua, the Marine flier was most often an ex-infantryman, but 10 years later many of the new Navy-trained Marine aviators were fresh from college and knew little about ground tactics. The lack of a real enemy to look for, identify, and to shoot at hindered attempts at precision, especially since air-ground radio was not yet as reliable as the old slow but sure system where pilots read code messages from cloth panels laid on the ground or swooped down with weighted lines to snatch messages suspended between two poles.

The main key to development of close air support lay in reliable communications to permit quick liaison and complete understanding between the pilot and the frontline commander. Part of the solution lay in more exercises in air-ground coordination with emphasis on standardized and simplified air-ground communications and maps.⁷⁰

By the end of the decade, the CMC noted in his annual report to the Secretary of Navy that "air-ground training between aviation and ground troops has been conducted whenever possible." Also as a step in the right direction, an aviator was assigned as an air liaison officer to the 1st Marine Brigade Staff in 1939. Thereafter, the billet became permanent. With the theory of employing aircraft in tactical support of troops well understood, and air-ground exercises conducted whenever possible, the method of exercising control of supporting aircraft, particularly large numbers of aircraft, would have to be left to the next decade and the initial engagements of World War II.

CHAPTER IV

THE DECADE OF THE FORTIES—THE WAR AND THE BOMB

The 1940s produced the most destructive war in history and by the middle of the decade had given birth to the atomic age. With the fall of France in June 1940 and the Battle of Britain about to begin, President Franklin D. Roosevelt announced his policy of endeavoring to save Britain and at the same time prepared America for a national emergency. In a speech to the graduating class of the University of Virginia on 10 June 1940, he announced:

In our American unity, we will pursue two obvious and simultaneous courses; we will extend to the opponents of force the material resources of this nation; and, at the same time, we will harness and speed up the use of those resources in order that we ourselves in the Americas may have equipment and training equal to the task of any emergency and every defense.¹

On 14 June 1940, the date that the Germans occupied Paris, the President signed a naval expansion bill that had been under discussion for months. In effect, it gave the Navy the green light to build a "two-ocean" Navy. By the end of the fiscal year Federal expenditures for the Army and Navy rose from \$1.8 billion for the fiscal year 1940 to \$6.3 billion for the fiscal year 1941.

On 15 June 1940, the President appointed a group of eminent civilian scientists to a new National Defense Research Committee. Vannevar Bush, president of the Carnegie Institution of Washington, was the chairman. From this committee stemmed most of the scientific research done for the armed forces during the war.* By September 1940, Congress established the first peacetime compulsory military service program with the Burke-Wadsworth (Selective

Training and Service) Act which called for the registration of all men aged 21–35. By the end of the year, the President established the Office of Production Management under William S. Knudsen to coordinate defense production. In 1941, Congress passed the Lend-Lease Act, which empowered the President to provide defense equipment to countries whose security was vital to the defense of the United States. During the war, lend-lease aid totaled some \$51 billion.

In the Far East, a Japanese imperial conference, in the summer of 1941, decided on expansion southward even if it meant war with the United States and Great Britain. Three weeks later, the Japanese occupied southern French Indo-China. America, two days later, declared economic warfare on Japan by freezing all Japanese assets in the United States and stopped all trading with Japan. Diplomatically, the remaining months of 1941 were concerned with talks between Japan and the United States about resuming trade and the American demand for Japan to get out of China and Indo-China.

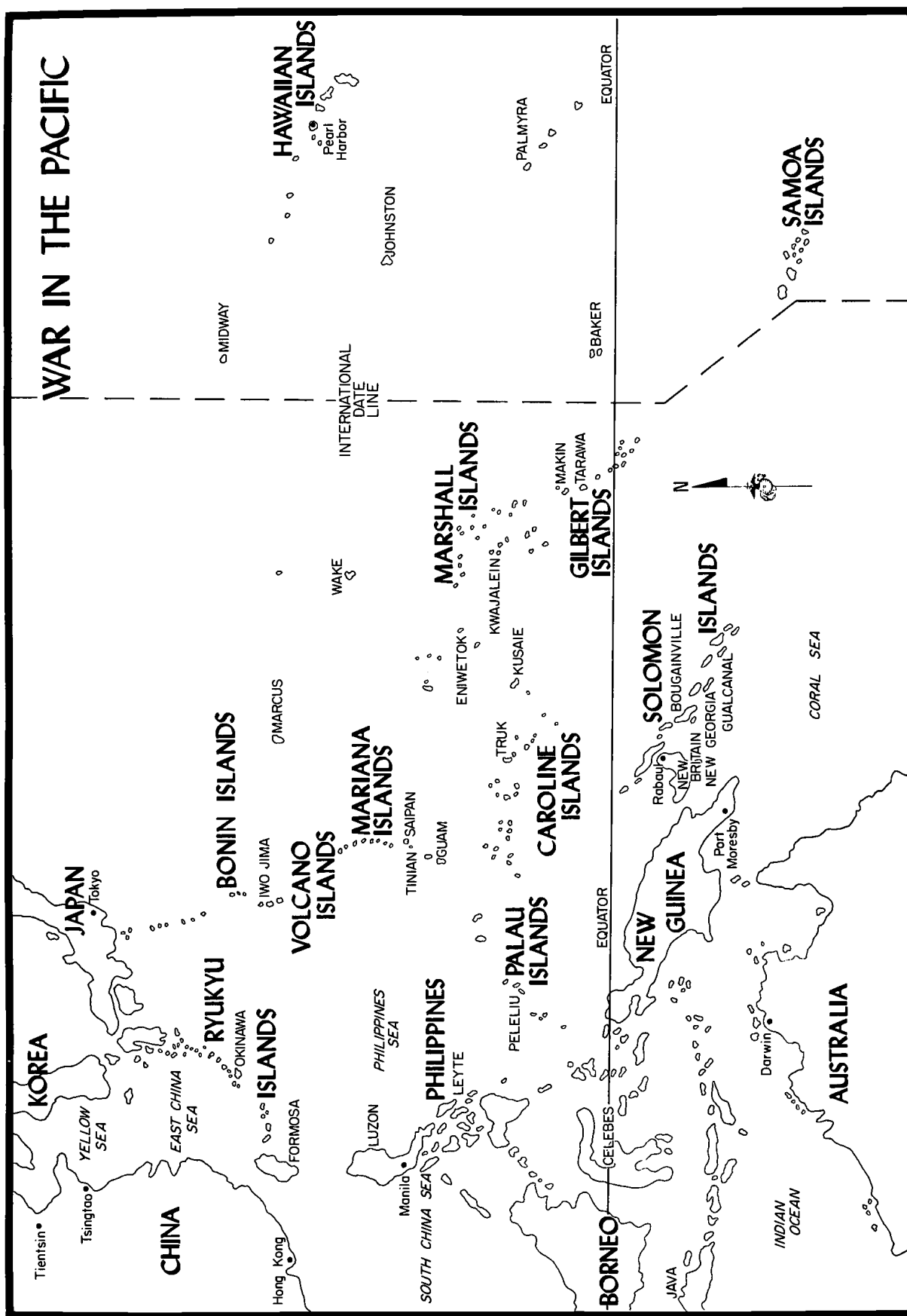
The day after the attack on Pearl Harbor, the United States declared war on Japan and three days later, Germany and Italy declared war on the United States.

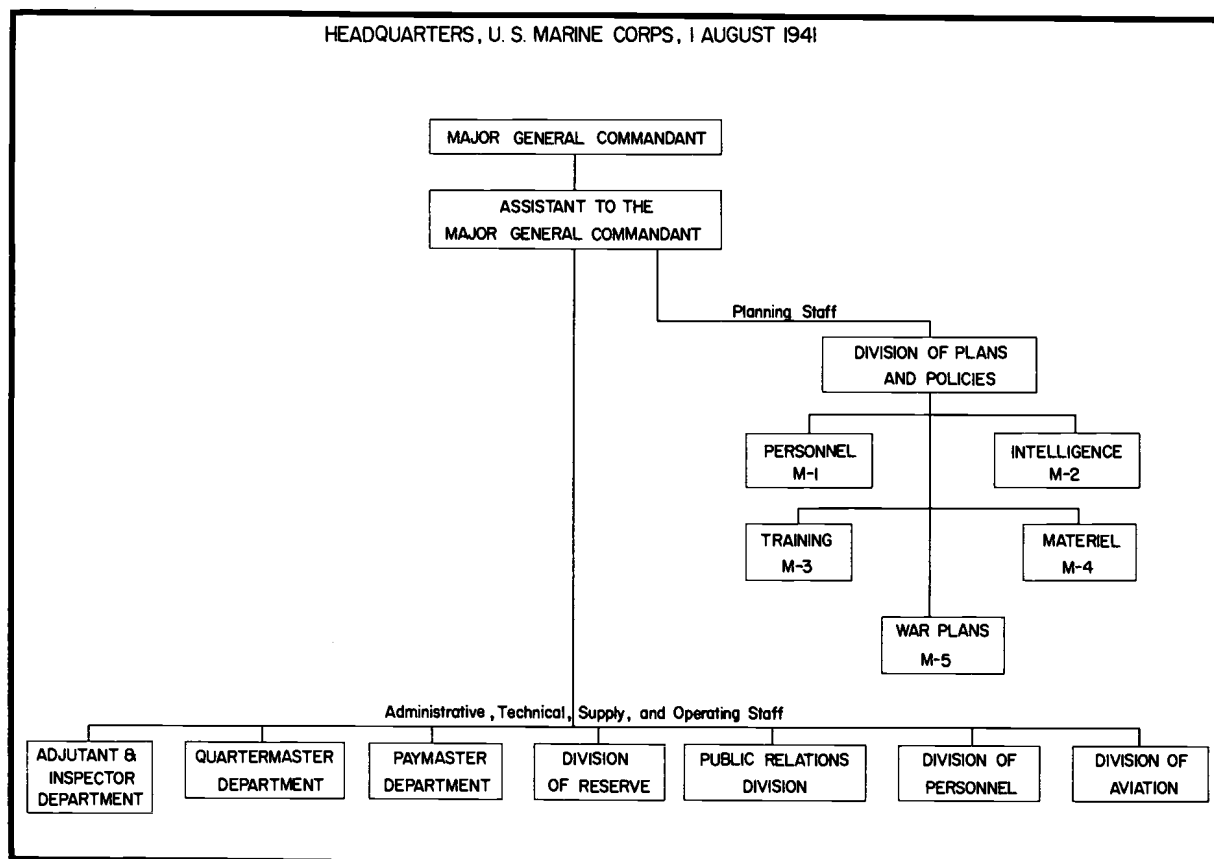
War Plans

The organization of our government is particularly well adapted to effective preparation for and conduct of war, yet history shows that, due to failure to give adequate consideration to this subject during peace, war has always found us unprepared, and our conduct of war has been both uneconomical and inefficient.²

The United States, as all sovereign nations before her, made plans for war with potential enemies and their allies. America, a late-

*An excellent history and analysis of the story of the National Defense Research Committee and other research and development agencies during the war is contained in Chapter XIX of the *Administration of the Navy Department in World War II* by Rear Admiral Julius A. Furer published in 1959.



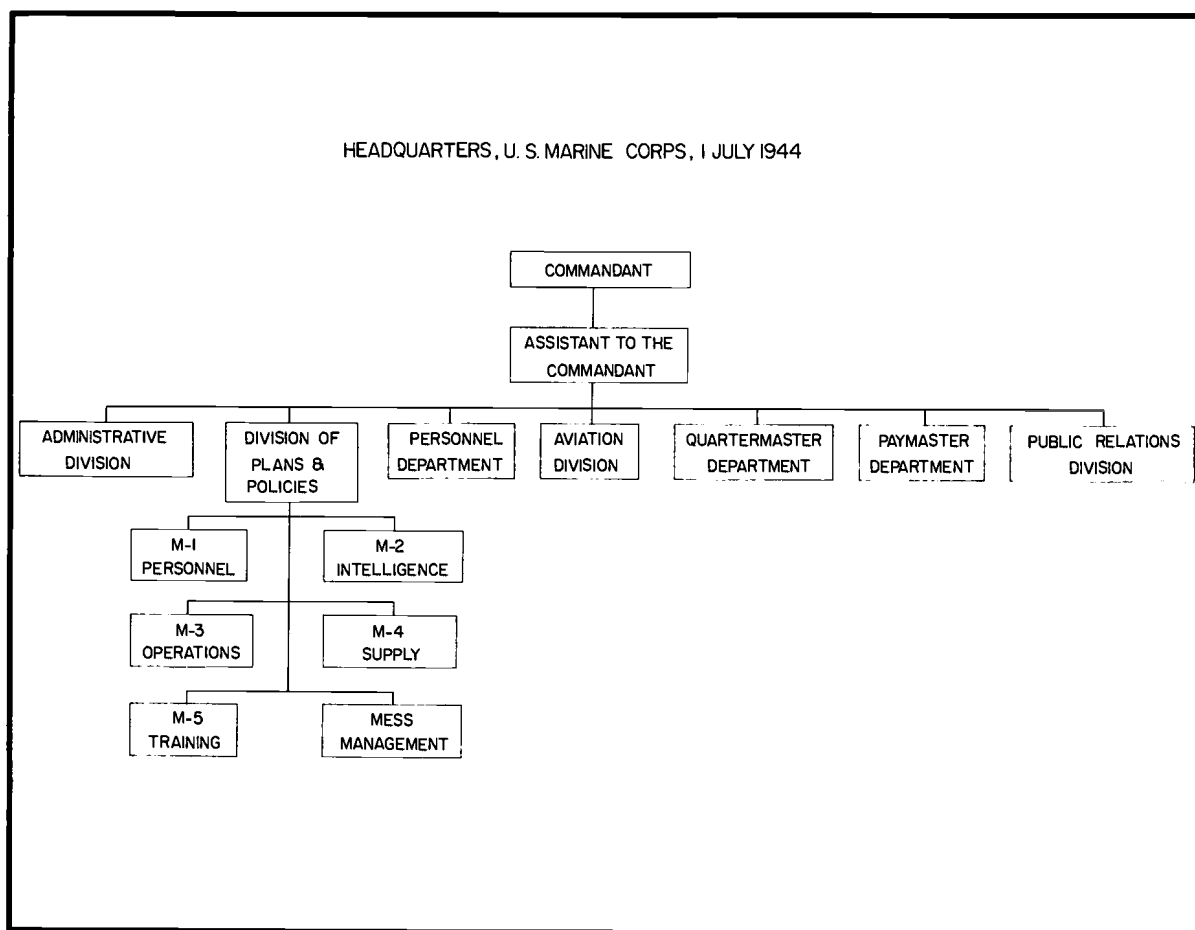


starter in the business of foreign wars, began making such plans only after it became a nation with colonies; that is, after the Spanish-American War. The group in the military services responsible for framing the war plans of the United States was the Joint Army and Navy Board. The board, founded in 1903, initially had a membership of eight; four Army and four Navy officers.* The Marine Corps was never represented on the Joint Board and would have to wait until after World War II to be represented on the Joint Chiefs of Staff. It should be noted, however, that the CMC or his representative, particularly during World War II, was always a close adviser to the senior naval officer on the Joint Board, in matters concerning the Marine Corps.

*After reorganization in 1919, the board consisted of six members, the Army Chief of Staff and the CNO, their deputies, and the Chiefs of the War Plans Divisions of each of the services. Kent Roberts Greenfield, ed., *Command Decisions* (Washington: Office of the Chief of Military History, Department of the Army, 1960), p. 13.

Prior to World War II, war plans derived their titles from the code name of the probable enemy, and because Japan was designated ORANGE, the plan dealing with a conflict with Japan was called ORANGE Plan.³ After 1907, and the war scare with Japan (see Chapter I), the plan most likely to be used became the ORANGE Plan. It provided the strategic concept and missions to be followed in the event of war with Japan. Each of the services developed its own plan to guide its operations in an emergency, and field and fleet commanders drew up the plans to carry out these operations. Many changes in concept of the ORANGE Plan took place in the intervening years because of changes in the international scene.

Before World War I, the broad concept was that the Army was to defend the Philippines until the fleet could carry reinforcements across the Pacific. Naval strategists realized that before a relief expedition could be dispatched to the Philippines, Japan certainly would have seized



Guam, thus depriving the United States of its only fleet anchorage between Pearl Harbor and Manila Bay. The Navy conjectured that either Guam would have to be retaken or some other site occupied as a coaling and repair station. After World War I, the ORANGE Plan took on new dimensions when Japan gained control over the former German possessions in the Marshalls, Carolines, and Marianas. The Philippines were more vulnerable than before and Guam now was ringed by Japanese outposts. The Joint Board again had to review and revise the ORANGE Plan series.

The Marine Corps' claim for an important role in an ORANGE war came in their contributory plan to the Navy's ORANGE Plan. The plan, called 712D-Operation Plan, was the work of Major Earl H. Ellis.* In 1921,

*Earl H. Ellis, also known as Pete, was born in Luka, Kansas, in 1880. After graduation from high school, he enlisted in the Marine Corps and served about a year before being commissioned from the ranks as a 2d

Ellis was assigned to the then newly formed Division of Operations and Training at Headquarters Marine Corps. Having previously written a significant article on Advanced Base Operations, Ellis wrote another study called

Lieutenant in December 1901. He attended the Naval War College as a captain from 1911-1912, after which he remained on the staff of the college. While on the staff, he wrote a significant paper entitled "Naval Bases; Location, Resources, Denial of Bases, Security of Advanced Bases" in 1913. It was accepted and published in 1921, the same year as his "Advanced Base Operations in Micronesia." He served in France during World War I and received a Navy Cross for his services with the 4th Brigade. After a short tour at HQMC he was granted a leave of absence from the Marine Corps in 1922. He traveled to the Philippines, Japan, and finally to the Caroline Islands. The State Department notified the CMC that Ellis had died at Parao, Caroline Islands, on 12 May 1923. It is with historical certitude to say that Ellis had seen, while in the Caroline Islands, what the world would ultimately know by WW II, that the Japanese illegally fortified the mandated islands contrary to the League of Nations instructions.



Lieutenant Colonel Earl H. Ellis, author in 1921 of Operation Plan 712, "Advanced Base Operations in Micronesia." (USMC Photo #307257).

"Advanced Base Operations in Micronesia, 1921." It was this study that the CMC, John A. Lejeune, approved and accepted, in total, as 712D—Operation Plan.⁴

Ellis' plan concentrated on one segment of a war against ORANGE, that of seizing a base that would be urgently needed by the Navy as a coaling or repair station. The objective Ellis had in mind was that of the Marshall Islands. He outlined the tactics to be used against islands within the Marshall group such as Eniwetok, Wotje, and Maloelap. Although his theories were limited by the equipment then available, he made several sound recommendations, urging among other things that troops fighting ashore have at their disposal the on-call fire of supporting warships. Considering the times, Ellis' plan marked a complete break with tradition. No longer would Marines be used primarily to defend advanced bases; instead, they would seize these bases from the enemy.⁵

Aside from the important contribution and originality in Ellis' plan, the value of the writing lay in the fact that it was truly a first-step approach to the problems of landing operations. Marine Corps and Navy officers of the 1920s and 1930s elaborated on Ellis' concept of seizing a base, as evidenced by the Advanced Base Problems worked on and discussed by MCS and the Naval War College. Other key Pacific islands were subsequently studied as potential battlefields.

As a result of these studies, landing operations doctrine evolved, landing techniques were refined, and new types of landing craft were tested. There was no novelty or far-sightedness in that Ellis had foreseen a war with Japan, that fact was quite common among the planners and leaders of the times. What was far-sightedness on his part was in the unique contribution of his plan which lay in the detailed guidelines on the tactics and techniques employed in seizing an island base. With newer and better equipment, the tactics and techniques employed during World War II were little different than what Ellis had envisioned.

Refinement of Tactics and Techniques in Amphibious Operations During World War II

Naval Gunfire (NGF)*

During World War II, many additions, deletions, and variations in general were made on the proven existing tactics and techniques involved in amphibious operations.** Perhaps the greatest improvements occurred in naval gunfire, close air support, and artillery fire. Certainly the best coordination of the three occurred during the war with the advent of the Fire Support Coordination Center (FSCC). In the area of naval gunfire, the *Tentative Landing Operations Manual* recognized the danger inherent in NGF support in conjunction with movement of troops ashore. A rudimentary doctrine evolved by the late 1930s, and bombardment experimentation was conducted on training ranges at

*Within the Marine Corps today, as a kind of a tongue-in-cheek truism, a person might be described as the "duty expert" in such-and-such a field. Using this term in retrospect, the "duty expert" in the naval gunfire area was Colonel Donald M. Weller. See his two articles in the *U.S. Naval Institute Proceedings* of August and September 1954, "Salvo-splash!, the Development of Naval Gunfire Support in World War II."

**"Amphibious operations" were words evolved during the early part of the decade of the 1940s. The meaning was not new but only the use of the words. Amphibious operations were synonymous with landing operations, a term used during the preceding 50 years. The term, amphibious, started to be used in fleet training publications during the late 1930s. By 1940, the U.S. Atlantic Fleet used it in a report to describe training of Army and Navy forces. By June 1942, the Navy added to the Fleet Training Division (Op-22) an "amphibious warfare section" (F-45). By the end of the war, it was quite a familiar term.

Culebra and San Clemente Islands. These bombardments were adjusted by shore fire control parties composed entirely of Navy personnel. Navy personnel were quite familiar with their ship's firing and no harm could come from shelling an island as long as troops were not involved. However, the same people were wholly unfamiliar with the tactical maneuvers of the troops they would be supporting in an actual operation. By 1941, the tempo of the development of NGF was accelerated. Shore bombardment exercises began to be conducted on a scheduled basis. The shore fire control party was reorganized as a landing force unit with a Marine artillery spotter and a Marine radio crew and a Navy officer serving in a liaison capacity. These shore fire control parties, as well as air spotters from potential fire support ships, received special training in Quantico and at a newly acquired bombardment range at Bloodsworth Island in the Chesapeake Bay.⁶

By August 1942, naval gunfire support was utilized in actual combat in the landing on Guadalcanal. There was, however, no initial hostile resistance to that landing. When planning for the Gilbert Islands began, it was



General Alexander A. Vandegrift, 18th Commandant of the Marine Corps, 1 January 1944 to 31 December 1947. (USMC Photo #306429).



General Thomas E. Holcomb, 17th Commandant of the Marine Corps, 1 December 1936 to 31 December 1943. (USMC Photo #12444A).

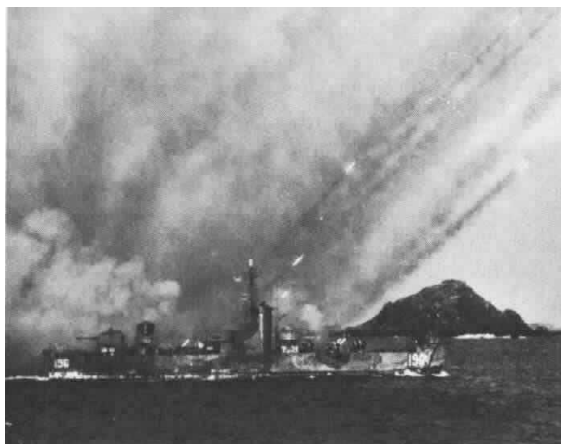
realized that strong defensive fortifications would be encountered. The plan of gunfire support for the assault of Tarawa Atoll called for 75 minutes of the heaviest naval support ever delivered up to that time. Even so, although many enemy troops were neutralized, the majority of the defensive installations were still effective.* The lessons learned at Tarawa marked a turning point in the concept and execution of naval gunfire support. As a result, Marine Corps planners developed a concept for deliberate destruction of individual targets as opposed to general neutralization. This concept proved its value throughout the remainder of World War II.

The Marine Corps continued to press for improvements in gunfire support. At the request of the Marine Corps and with concurrence of the Navy, 20 LSMs, Landing Ships Medium, were converted into LSM(R)s, (Landing Ships, Medium (Rocket)). The LSM was developed as a tank carrier and was 203 feet long with a beam of 34 feet. It could carry either five M4 medium tanks, or six Landing Vehicles, Tracked (LVTs). The

*The commanding officer of the transport group which landed the Marines at Tarawa recalled stating his doubts of the efficacy of naval gunfire at Tarawa. He had witnessed a similar bombing and bombardment of Gavutu Island in the Solomons where he said the results had been most disappointing. RAdm Herbert B. Knowles 1tr to the Assistant Chief of Staff, G-3, Headquarters, U.S. Marine Corps, dated 1 September 1962, as quoted in Shaw, Nalty, and Turnbladh, *Central Pacific Drive*, p. 36.

LSM, when converted to the LSM(R), was equipped in late 1944 and early 1945 with from 10 to as many as 105 rocket launchers and one 5-inch/38 caliber dual-purpose gun.⁷ The LSM(R) was essentially an area suppressive fire ship used to support amphibious operations. These relatively inexpensive and simple ships provided the capability of delivering large volumes of fire in short periods of time.

Another support ship, a converted Landing Craft, Infantry (Large) (LCI (L)) and dubbed Landing Craft, Infantry (Mortar) (LCI (M)) was used extensively at Iwo Jima and later in the Okinawa campaign. At Iwo Jima, LCI (M)s provided "direct support on call and harassing fire to break up enemy counter-attacks. With their shallow draft they could work close in-shore on the flanks and often were in a position to shoot up gullies against enemy targets that were not visible to the Marines."⁸ During the first week on Iwo Jima, 30 LCI (M)s were assigned, but owing to breakdowns not all were available at the same time.



A LSM(R) fires its rockets at enemy targets in the Kerama Retto off Okinawa in late March 1945. (USN Photo #474951).

Close Air Support (CAS)

In the years prior to the war, the mission of Marine aviation, as directed by the General Board, was:

Marine aviation is to be equipped, organized, and trained primarily for the support of the FMF in landing operations and in the support of troop activities in the field; and secondarily as replacement squadrons of carrier based naval aircraft.⁹

Out of the general definition the fine points of CAS were defined as:

Attack by aircraft of hostile ground targets which are at such close range to friendly front lines as to require detailed integration of each air mission with the fire and movement of ground forces in order to insure safety, prevent interference with other elements of the combined arms and permit prompt exploitation of the shock, casualty, and neutralization effect of the air attack.¹⁰

The major problem initially of carrying out the intentions of the CAS definition was the lack of communications between the front lines and the support aircraft. CAS at Guadalcanal was rendered by Navy carrier planes supporting the landing. Later, Army and Marine pilots operating from Henderson Field gave support to the troops. The difficulty was that the line of communication extended from the front line to the headquarters at Henderson Field to the aircraft. Pilots were given the target before takeoff. In many cases they walked up to the front lines and visually checked the target. This system might be one of the forerunners of the Tactical Air Control Party consisting of a Marine aviator and communications personnel.* Prior to the Bougainville operation, a close air support school was organized under the direction of the 3d Division Air Officer and was attended by officers from each infantry regiment and battalion headquarters.

Based on Guadalcanal experience, three main objectives were sought in air support studies conducted by the 3d Division. These were: improved means of target designation, exploration of the precise effect of bombs and fusing of various types, and the determination of safety margins necessary for protection of our own troops. The employment of varied colored smoke for target designation was studied as a means of decreasing the effectiveness of the enemy's previous attempts to confuse our target designation with white smoke. During the instruction, air liaison party personnel were given intensive training in the use of field communication equipment and in air-ground communication procedure. When the 3d Division went ashore at Bougainville, its subordinate units included trained air liaison parties which could advise

*Brigadier General Edward C. Dyer suggests that an even earlier forerunner of the Tactical Air Control Party was the use of panels by front line troops and the system of dropping and picking up written messages such as was done on Culebra in 1939. BGen Edward C. Dyer ltr to the Director, M.C. History, dated 10 August 1970 (Historical Division, Headquarters, U.S. Marine Corps.)

the ground commander in matters of air support, transmit requests for such support, and assume tactical direction of any aircraft assigned.¹¹

The Bougainville operation in November 1943 marked a long stride in the evolution of the part aircraft were to play in the support of the amphibious advance. The techniques of CAS were perfected throughout the war. They paid greater dividends as the island-hopping program went on but there remained the inherent danger; bombing friendlies. There were instances of pilot error resulting in strafing and bombing our own troops and this of course did not improve the ground troops' confidence in CAS. However, the decision to employ CAS, while recognizing the calculated risk, rested with the commander of the troops concerned.¹² The ultimate doctrine of CAS that the Marine Corps evolved by the end of the war was based on two major techniques used in two major campaigns—the Philippines and Okinawa.

In October 1944, Marine pilots from MAG-24, at Bougainville, were given a mission to support an Army corps in the Philippines. A CAS school was set up under the direction of Lieutenant Colonel Keith B. McCutcheon. The 37th Army Division was in the area and joint training problems were scheduled with them and MAG-24. McCutcheon noted:

All pilots had the opportunity to observe a terrain problem conducted by an infantry battalion simulating an attack on a Japanese pillbox installation. To these problems the Group added planes in close support with their own Air Liaison Parties on the ground. Live bombs were not dropped, but the infantry actually fired everything in the book.¹³

What came out of the school was the principle that Marine aviators adopted and which was later adopted by Army Air and Navy that:

Close Air Support is an additional weapon to be employed only at the discretion of the ground commander. He may employ it against targets that cannot be reached by other weapons or in conjunction with the ground weapons in a coordinated attack. It should be immediately available and should be carried out with deliberation and accuracy and in coordination with other assigned units.¹⁴

At various conferences prior to the Luzon operation and MAG-24's support of the 1st Cavalry Division's sweep toward Manila, the Fifth Air Force, Southwest Pacific Area, with the Navy concurring, stated that it was not

contemplating using direct communication between its Air Liaison Parties (ALPs) and the planes in the direction of a mission. MAG-24 thought otherwise, so further emphasis was placed on training its own Air Liaison Parties. McCutcheon said that "... the Group did intend to have good control of its aircraft when engaged in close support, and if (Air Force) Air Liaison Parties were not to be permitted to give that control then the Group would send out its own personnel to give it."¹⁵ So it was that MAG-24 furnished its own ALPs. It was further determined that the policy would be control of the aircraft by the front line ALP on his own front using direct communication. In this way the ALP talked the support pilots to the target without going through a distant controller.* This was possible in the Philippines operation because air units were supporting no more than one division at a time. This was not the case on Okinawa. Inasmuch as five divisions were involved on Okinawa, four in line simultaneously, a closer, coordinated control of aircraft was necessary.

The aerial support of ground operations was handled through a smoothly functioning system of coordinating agencies. The breakdown was as follows:

Air Liaison Parties from the Joint Assault Signal Companies (JASCOs) were attached to each of the four divisions.

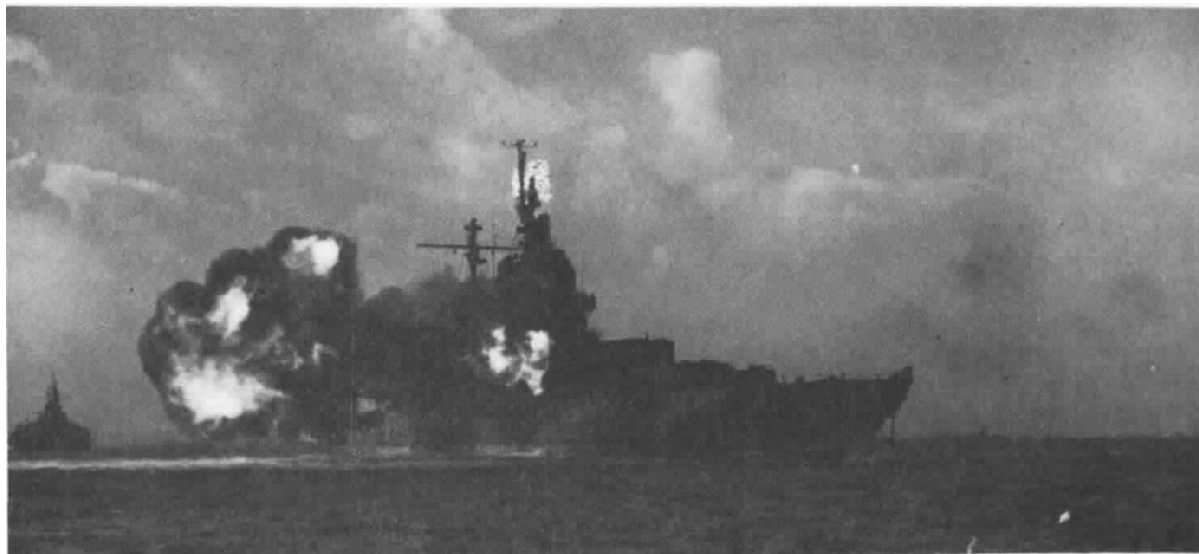
* * * * *

Requests for air support by the ALPs were made to one of the three Landing Force Air Support Control Units (LAFASCUs) all commanded by Colonel Vernon E. Megee. Colonel Megee, physically located at Tenth Army Headquarters in LAFASCU-3, coordinated the work of LAFASCU-1 and LAFASCU-2 which handled the air support requests of the III Amphibious Corps and XXIV Corps respectively.

* * * * *

Colonel Megee, in reality LAFASCU-3, screened all requests for air support of the ground troops and relayed all orders direct to Tactical Air Force (TAF), Tenth Army. Out of its allocation of planes, TAF responded accordingly. Because of the Japanese Kamikaze attacks directed against naval units

*Lieutenant General Keith B. McCutcheon stated, in a letter to the Director of Marine Corps History, that "The ALPs that we used (in the Philippines) were the true forerunners of TACPS. We also had a van mounted radio that we farmed out to division CPs when it was necessary, and it was the forerunner of the DASC. The main contribution that we made in the Philippines, however, was to break the ban on having controllers in the front lines talk directly to aircraft and actually control the strikes." (HRS, HD, HQMC)



USS Idaho firing in support of landing operations at Okinawa on 1 April 1945. (USMC Photo #116412).

off Okinawa, "operational control of aircraft in the Ryukyus remained with the Navy until the area was secured."¹⁶

By the end of the war a system of control evolved which attempted to incorporate the flexibility of the Philippine system with the coordination of the Okinawa system. The request for air support would go direct to a center called the Tactical Air Direction Center. Intermediate echelons would monitor the request, indicating their approval by silence. When air support was approved, it would be controlled by the Forward Air Controller whenever the tactical situation permitted. This introduced the flexibility of the Philippine system without sacrifice of safety to the ground troops or interference with the overall tactical situation.

Fire Support Coordination Center (FSCC)

Standard artillery tactics and doctrine proved sound throughout the war. On different islands some organic weapons were inadequate for the task of destroying the type of emplacements encountered. On Iwo Jima, the 105mm and 75mm howitzers of the divisional artillery battalions were completely unsuited for the work of destroying many of the imposing Japanese fortifications. Even the much heavier 155mm shells of corps units required 10 to 12 hits, all in the same place, to inflict major damage.¹⁷ All was not lost, however, in the ultimate destruction of those targets on Iwo Jima. If artillery could not do the job,

then naval gunfire or support aircraft might be able to do so. Iwo Jima was an example of successful coordination of supporting arms.

It was at Iwo Jima that the first Marine FSCC was established. Colonel John S. Letcher was selected by Major General Harry Schmidt, V Amphibious Corps commander, to coordinate all supporting arms ashore. Colonel Letcher was, in addition, commander of the 1st Provisional Field Artillery Group, namely two 155mm howitzer battalions constituting the corps artillery. Colonel Letcher, who set up the FSCC in a tent, was in continuous communication, afloat and ashore, with liaison officers assigned to each of the three divisional artillery regiments. Always at his elbow was a representative of the naval gunfire officer of the V Amphibious Corps, Lieutenant Colonel Donald M. Weller, and a liaison officer from the Landing Force Air Support Control Unit, headed by Letcher's senior, Colonel Vernon E. Megee. Both Megee and Weller had staff separate and distinct from Letcher's and the FSCC functioned as a clearing house of requests for close support coming in from the field. Letcher, giving orders only to corps artillery, along with the air and naval gunfire liaison officers, screened and integrated these requests, and Megee and Weller as the ranking corps air and naval gunfire officers forwarded them in the status of requests to the implementing agencies afloat.¹⁸ This arrangement was in effect a safeguard against unwarranted duplication of fires and against impos-

sible demands being made on any given arm. In practice, it functioned extremely well.

The essential elements of the FSCC were used in the Okinawa operation. The Tenth Army utilized a Target Information Center (TIC). At each staff level down to the battalion, the artillery officer acted as the target coordinator for infantry support. Working in close conjunction with the NGF and air liaison officers, the TIC collated intelligence regarding enemy defenses. It allocated fire missions to the support elements whose capabilities promised the most effective results. The "system stood the test of combat without major difficulties and drew unanimous praise from the divisions using it."¹⁹

Trials and Adaptations—Marine Aviation

In addition to improvements in NGF, CAS, and artillery support, the Marine Corps adapted from the European war experience certain training thought usable in the Pacific. The first Marine Night Fighter Squadron, VMF (N)-531, was commissioned 16 November 1942 at Marine Corps Air Station (MCAS), Cherry Point, with Colonel Frank H. Schwabé commanding. By 17 June 1943, the squadron had six combat aircraft. Marine night fighters operated for the first time during the Bougainville campaign and supplied the experience on which subsequent training was based. Pilots were given intensive training in interception of and firing at an airborne target at night. The Marine Corps sent officers to Great Britain in February 1943 where they studied the technique employed by the British in control of interception. They worked with the Royal Air Force and attended a Fighter Director school at Stanmore, England. What they learned was brought back to the United States where night fighter training was given greater emphasis. Marine Night Fighter Squadron 531, the original unit, went to Eagle Mountain Lake, Texas, in April 1944, but by that time six more night fighter squadrons had been organized in the Marine Corps.²⁰

In addition, Marine Aviation set up an air warning program and commissioned at Cherry Point, on 1 July 1943, Marine Air Warning Group 1 under the 3d Marine Aircraft Wing. Subsequently, Air Warning Squadron 1 was commissioned as the first of 19 such units. Officers were trained in radar at the Massa-

chusetts Institute of Technology and Harvard, then went to Camp Lejeune, North Carolina or Ward Island, Corpus Christi, Texas. Enlisted radar technicians were trained at Fort Monmouth, New Jersey, by the Army. Officers attended the air warning school at Orlando, Florida and commenced training at NAS, St. Simon's Island, Georgia.²¹

The Marine Corps considered training with parachute troops and gliders. Marine Corps paratroopers made their first demonstration jumps at Lakehurst, New Jersey, 29 December 1940. It was during fiscal year 1941, that the Marine Corps was authorized to organize two parachute battalions. A parachute training school was established in 1941 on the West Coast near Santee, in the San Diego area, and named Camp Gillespie in May 1942. These courses lasted six weeks. By April 1943, there were sufficient parachute troops available, approximately 3,000 men, to meet the operational requirements. However, because of the terrain of the Pacific Islands, and the lack of sufficient lift capabilities, parachute units were disbanded on 10 December 1943.²²

In a similar vein, the Marine Corps organized a barrage balloon training school at Parris Island on 12 June 1941. Facilities were set up in September 1941 at New River (Camp Lejeune), North Carolina. The purpose was to train barrage balloon units with defense battalions in base defense operations. Of six barrage balloon squadrons (designated ZM squadrons) four remained in the United States to guard Navy yards and bases, two went overseas, one to Tulagi and the other to New Caledonia. It was learned that the balloon barrages created as great a hazard to friendly aircraft as to enemy planes. Their mission was to protect the artillery of the defense battalion to which they were assigned, but it was found that the 90mm antiaircraft guns proved more effective. The barrage balloon organization was abandoned 15 December 1943.²³

Another type of training was in the use of gliders. A study by the Bureau of Aeronautics in June 1941 of towed gliders for the purpose of transporting personnel and equipment culminated in the organization of a Marine Corps Glider Detachment on 6 January 1942 at Parris Island for primary and advanced training. The bureau was responsible for the procurement of glider equipment, while the Marine Corps was responsible for training the personnel required to operate gliders as-

signed for troop-carrying purposes. In order to administer the program, the CMC authorized the Division of Aviation in July 1942, to organize a glider-paratroop unit, and had as officer-in-charge, Major John Wehle. By December 1942, there were 240 Marines taking training. Glider bases were constructed at Eagle Mountain Lake, Texas, and Edenton, North Carolina in the summer and fall of 1942 and training got under way at Eagle Mountain Lake in the spring of 1943. Again, after much thought about the type of terrain in the Pacific and the potential drain on pilot resources, the glider program was abandoned 24 June 1943 when Marine Corps Glider Group 71 was disbanded and its personnel transferred to the 3d Aircraft Wing. A total of 207 gliders were on order but none was delivered.²⁴

And Then Came the Bomb

The atomic bomb ended the war and ushered in the atomic age. Much information and misinformation and legend came as a result of the survey of the damage at Hiroshima and Nagasaki. In order to get the facts, the government set up a series of tests, under the cognizance of the Navy, called Operation CROSSROADS in the summer of 1946. The place was Bikini Lagoon in the western Marshalls. Two atomic bombs, one in the air, the other underwater, were exploded in the midst of a fleet of obsolescent warships used as targets. The results of the tests indicated that enough damage was done to drastically alter the World War II techniques of amphibious warfare. Certain responsible military leaders were quoted as saying that it would be impossible to conduct an amphibious assault in a nuclear war. It is important to note that the Navy and Marine Corps, from the outset, believed that the atomic weapon had had no significant effect upon amphibious doctrine but it did, of course, affect techniques and equipment.

The senior Marine officer at the tests, Lieutenant General Roy S. Geiger, Commanding General, FMF Pacific, wrote to the CMC three weeks after the tests what must be considered a truly historic document of the Marine Corps. His deep concern was reflected in the impressions he conveyed in his letter as follows:

Under the assumption that atomic bombs can be produced in large quantities, that they can be used in mass attacks against an enemy objective, and

that our probable future enemy will be in possession of this weapon, it is my opinion that a complete review and study of our concept of amphibious operations will have to be made. It is quite evident that a small number of atomic bombs could destroy an expeditionary force as now organized, embarked and landed. Such a force might not fare so badly on the high seas, if properly dispersed.—It is my opinion that future amphibious operations will be undertaken by much smaller expeditionary forces, which will be highly trained and lightly equipped, and transported by air or submarine, and movement accomplished with a greater degree of surprise and speed than has ever been heretofore visualized. Or that large forces must be dispersed over a much wider front than used in past operations. With an enemy in possession of atomic bombs, I cannot visualize another landing such as was executed at Normandy or Okinawa. It is trusted that Marine Corps Headquarters will consider this a very serious and urgent matter and will use its most competent officers in finding a solution to develop the technique of conducting amphibious operations in the atomic age.²⁵

Only 13 days after receiving this grim warning, the CMC appointed a special board headed by Major General Lemuel C. Shepherd, Jr., Assistant Commandant of the Marine Corps and two other members, Major General Field Harris, Director of Aviation and Brigadier General Oliver P. Smith, Commandant of the Marine Corps Schools. The task of the Special Board was to take up the matter of amphibious warfare in the atomic age.²⁶ As it happened a decade or more before, and will undoubtedly happen in the future, the Marine Corps Schools were called upon again to help arrive at a solution. This Special Board appointed a Secretariat, to conduct the actual research into probable effects of atomic explosion on future amphibious operations. The Secretariat consisted of Colonel Merrill B. Twining, Colonel Edward C. Dyer, and Lieutenant Colonel Clair W. Shisler.

The problems confronting the Marine Corps in conducting amphibious assaults in the face of atomic attack were exceedingly complex. The Navy believed, and the Marine Corps agreed, that naval air and surface warfare could be conducted in an atomic attack with increased dispersion of the fleet. However, the immediate problem for the FMF would be that dispersion would not provide increased protection for the landing force. On the contrary, the landing force, as in the past, had to concentrate in strength at the point of landing or risk the consequences of depleted firepower aggravated by insurmountable dif-

facilities of control and communications. Dispersion, which was necessary to the fleet, likewise deprived the amphibious attack of its greatest characteristic—the ability to strike swiftly and in overwhelming force. General Alexander A. Vandegrift, the CMC, advised the Special Board that in surmounting certain requirements revolutionary measures might be required. He stated that “details are neither expected nor desirable at this time, but general principles must be determined in order to orient the effort of the Marine Corps away from the last war and toward the next.”²⁷

The Shepherd Board’s precept directed it to study:

- (1) Employment of helicopters for ship-to-shore movement,
- (2) Damage effects of the explosion of an atomic bomb, and,
- (3) Special equipment for amphibious operations.²⁸

Within number (3) above, special equipment for amphibious operations, the board considered airborne landings, submarine landings, large flying boats, and helicopters.

On 16 December 1946, the Special Board submitted to the CMC the findings of their study. The Special Board stated:

The atomic bomb now prohibits the heavy concentrations of ships and landing craft heretofore used in amphibious operations. The answer lies in a wide dispersion of our attack force, a rapid concentration of our landing force by means other than small boats or amphibians and thereafter maintaining close contact with the enemy. Airborne operations by landplane transport, by parachute or by glider are not suitable for Marine Corps employment . . . Submarine transports will be useful but to a limited extent. The development of a combination of large flying boats and helicopters will overcome the limitations of a purely airborne method, keep the enterprise a purely naval one, and permit its rapid exploitation and support from widely dispersed and more economical surface vessels.²⁹

The report, in studying airborne landings, submarine landings, large flying boats, and helicopters, indicated that while all of the courses of action had some elements of advantage, all had marked disadvantages. It was obvious, even at this early date, that the board had more faith in the helicopter. The second choice was the large seaplane.* The

*At the time, the seaplane in the immediate future was the Martin “Mars” with an empty weight of 75,000 pounds and a cargo and fuel load of 63,000 pounds. It was to have a troop-carrying capacity of 133

board felt that the speed of the helicopter offered a practical means of overcoming the effects of dispersion while likewise reducing exposure to atomic attack. In addition, it possessed many of the advantages of the airborne attack with few attendant disadvantages. Under the method visualized, helicopters would be carried by transport carriers with additional machines carried by transports and LSTs. The board felt that personnel could be landed in proper formation on the flank or rear of the hostile position and that palletized supplies could be landed in or near dumps without further handling. Helicopters of the future could be constructed to carry larger loads; they could be made faster and ultimately less vulnerable than landing craft. The board concluded that “the speed of the helicopters renders the degree of transport dispersion at sea a matter of no disadvantage and likewise introduces a time space factor in landing that will avoid presenting at any one time a remunerative atomic target.”³⁰

The board believed that the helicopter amphibious assault technique capitalized on the inherent characteristics of the vehicle with a view of providing the landing force with those precious ingredients, “speed,” “flexibility,” and “dispersion.” The report also included a proposed program for the use of helicopters by the Marine Corps. The board recommended the following: (1) that an experimental squadron should be organized and equipped with 12 helicopters of the first available type; (2) that a study of techniques, tactics, logistics, and other phases of ship-to-shore movement by helicopters be made to include military requirements for future helicopter design.³¹

Within three days, the Commandant concurred in the board’s conclusions and forwarded the report to Brigadier General Oliver P. Smith, CMCS, directing him to implement the developmental program outlined in the report.³² The CMC directed the MCS to undertake “an immediate study of the employment of helicopters in an amphibious operation,”

equipped men in seats. Howard Hughes, millionaire aircraft designer, was building a prototype eight-motored transport seaplane, which was designed to carry a 44-ton tank as part of its payload of 120,000 pounds. Clamshell doors and a landing ramp could be added to the design. The Special Board did not seem very optimistic about the outlook for either the Hughes or Martin seaplane being delivered in adequate numbers “within the next five years.”



USS Thetis Bay (CVEA-1) with helicopters on deck preparing to ferry troops to attack positions during Operation SKI JUMP (January 1957) at Camp Pendleton, Calif. (USMC Photo #A352474).

and to submit: "a. A tentative doctrine for helicopter employment, and b. The military requirements of a helicopter specifically designed for ship-to-shore movement of troops and cargo." In the same letter, MCS was directed to further study the employment of transport seaplanes in amphibious operations. As a last bit of guidance, the CMC stated:

As a concurrent problem it is obvious that operations using such air-vehicles may well require a complete revision of Tables of Organization as well as prescribed equipment. If it is found that revision or reduction in the size of organizations or changes in the types of amounts of arms, equipment, and supplies are necessary, recommendations to that effect should be included.³³

Repeat of the 1930s

Unlike 1933, and the writing of the Tentative Landing Operations Manual, classes did

not have to be suspended at MCS during 1947 to write the new doctrine for helicopters. The Committee to do the work was officially called the Committee of the Academic Board (referring to the Academic Board of the Educational Center of MCS). This Committee, headed by Colonel Robert E. Hogaboom, was assisted by the Secretariat that researched for the Special Board, Colonels Twining, Dyer, Shisler, and (later added to the Secretariat) Lieutenant Colonel Samuel R. Shaw.*

Unlike other boards that would bear the name of the chairman, the Committee of the

*Presumably because any work done at MCS is a team effort, official reports covering tactical and doctrinal work are signed only by the chairman of a committee or the CMCS even though a dozen men might have contributed. This method may be commendable but it plays havoc with historical records.

Academic Board simply became known as the Helicopter Board. Colonel Hogaboom would indeed head another board in 1957 that would be called the Hogaboom Board and would reshape the FMF.

Within three months of the CMC directive of 19 December 1946, the Helicopter Board submitted a report entitled "Military Requirements of Helicopter for Ship-to-Shore Movement of Troops and Cargo."³⁴

The report envisioned a helicopter with a seating space for a minimum of 15 and a maximum of 20 infantrymen "suitably armed and equipped to initiate combat." The report did not set its sights on a helicopter carrying more than 20 men as "a capacity in excess of twenty (20) men is not desirable in an assault helicopter since the craft will undoubtedly be extremely vulnerable."³⁵ When the committee initially outlined the problem, it appeared to be realistic in view of the times:

On the premise that the helicopter offers a valuable means of accelerating and dispersing the ship-to-shore movement, it is recognized that complete replacement of all existing ship-to-shore conveyances may at some future date be desirable. Under such conditions it would appear necessary that there be designed a relatively small type helicopter for transportation of assault troops, as well as a large type helicopter capable of lifting all divisional loads. However, examination of current technical developments indicates that the latter type may not be practical for some time to come. Accordingly, it is considered more realistic to approach the problem in increments, establishing initially the characteristics for a purely assault conveyance. . . .³⁶

In general terms, the report briefly discussed the payload, range, speed, armor, etc., desirable for the 15-20-man helicopter. However, it was the 1930s again, doctrine being evolved first and then the equipment to fit the doctrine.

In view of the recommendation of the Shepherd Board of December 1946, the CMC requested the Secretary of the Navy through the CNO to activate an experimental helicopter squadron (HMX). This squadron, HMX-1, was placed under operational and administrative control of the CMC via the Commanding Officer of the Marine Corps Air Station at Quantico who was designated to furnish logistic support for it.³⁷

The CMC assigned missions and tasks to HMX-1 as follows:

Missions

1. Develop techniques and tactics in connection with the movement of assault troops in amphibious operations.

2. Evaluate a small helicopter as replacement for the present fixed-wing observation (OY) aircraft in gunfire spotting, observation, and liaison missions in connection with amphibious operations.

Tasks

1. Develop a doctrine for the aviation tactics and technique in the employment of the helicopter in amphibious operations.

2. Assist the Marine Corps Schools in the development of a doctrine covering the tactics and techniques of the employment of helicopters in amphibious operations.

3. Study the operation and maintenance of assigned aircraft.

4. Develop the flight proficiency of pilots and air crewmen.

5. Develop and maintain the technical proficiency of mechanics.

6. Submit recommendations for tables of organization, equipment allowances, and related data for future helicopter squadrons.³⁸

Colonel Clayton C. Jerome, Commanding Officer of Marine Corps Air Station, Quantico, welcomed the new HMX-1 squadron with instructions that it was to get the pick of personnel and the best facilities of the station. The first commanding officer of HMX-1 was Colonel Edward C. Dyer, former member of the Secretariat of the Helicopter Board. While waiting for helicopters, Colonel Dyer arranged to have the eight officers that were assigned to the squadron sent to the naval experimental helicopter squadron, VX-3, at the Naval Air Station, Lakehurst, New Jersey, to obtain some flight training. Among the few experienced instructor pilots at Lakehurst was a Marine, Major Armond H. DeLalio, "who is recognized as the pioneer helicopter pilot of the Marine Corps. He had taken part from the beginning in the Navy's helicopter program; and as operations officer of VX-3 in 1947, he provided training for Dyer's officers in Navy helicopters. . . ." ³⁹ At Colonel Dyer's request, Major DeLalio was subsequently assigned to HMX-1 as operations officer in early 1948.

The year 1948 was a good year for HMX-1. In February it received its first two helicopters, both HO3S-1, Sikorsky-built with a 450-horsepower Wasp engine. Though listed as a four-place craft, it could actually lift only two combat-equipped men in addition to the pilot, or two casualties on external litters. The maximum load, including gas, pilot and passengers or cargo, was 1,180 pounds; the



Sikorsky HO3S-1 observation-utility helicopters at Quantico's air station in May 1948. (USMC Photo #25605).

operating radius, 80 miles; and the maximum speed at sea level, 103 miles per hour.⁴⁰

While not the large prototype theoretical helicopters discussed in doctrinal writings, the HO3S-1 proved invaluable for training the pilots for better models to come. As in the thirties, when Roebling and Higgins were encouraged to manufacture their craft for military needs, so, too, did Marine officers, namely Colonels Dyer and Twining, encourage Sikorsky, Piasecki, and Bell to design for the needs of the Marine Corps.*

Paradoxically at HMX-1, the first mission, in addition to training purposes, occurred when a helicopter was used to "determine the best route for a salvage party to remove a 'Weasel' (Amphibious Jeep) that had become mired in a nearby creek."⁴¹

By 1 May 1948, the squadron had enough personnel, 12 officers and 32 enlisted men, plus

*Igor Sikorsky, Russian-born, American aeronautical engineer, builder, inventor, and founder of the Sikorsky Aviation Corporation and Engineering Manager of Sikorsky Aircraft Division of United Aircraft Corporation. Holder of many honorary degrees, awards, and honors, Sikorsky retired in 1957 but acted as consultant and adviser to United Aircraft until his death in 1972.

Frank N. Piasecki, American-born aeronautical engineer, builder, inventor, and founder of the Piasecki Helicopter Corporation and Piasecki Aircraft Corporation. Piasecki was president of his corporation and director of the Crown Cork International Corporation.

Lawrence D. Bell, American-born aeronautical engineer, builder, and designer. General Manager of the Glenn L. Martin Corporation, he later became vice-president in charge of sales for Consolidated Aircraft Company and later organized the Bell Aircraft Corporation. During World War II, Bell Corporation manufactured the P-39 Air Cobra fighter. Bell entered the helicopter field during 1943, specializing in light utility machines.

a total of five HO3S-1s to participate in Operation PACKARD II. This operation was the second amphibious command post exercise held jointly by Navy and Marine forces to simulate a ship-to-shore assault landing against an enemy defending the beaches. This time, the beach was not at Culebra but at Onslow Beach, Camp Lejeune, North Carolina.

The following objectives were assigned to HMX-1 during the PACKARD II exercise:

To take a positive step forward in the development program by making an actual landing of troops by carrier-based helicopters;

To gain experience in operating helicopters on board an aircraft carrier and experience in helicopter landing operations upon which a sound doctrine for these operations could be written;

To gain individual and collective experience for pilots, aircraft crews, and other squadron personnel so that more extensive operations could be undertaken in the future;

To determine probable military requirements for landing force helicopters of the future.⁴²

Colonel Dyer and his squadron reported to Captain R. E. Dixon, USN, commanding the CVE (escort aircraft carrier) USS *Palau*. In the exercise, HMX-1 was to simulate landing one regimental combat team. During the actual landing, a total of 66 men and considerable communications equipment were transported to the beach by helicopter. A total of 35 flights were made between the ship and the landing zone.⁴³ For the entire operation, a total of 28.6 hours were flown and a total of 103 carrier landings and take-offs were made.

Foremost among the conclusions arrived at by the HMX-1 report was the need for a larger helicopter. Change the name of the equipment and it would sound like the concluding remarks in the fleet landing exercises of the 1930s, "a better landing boat is needed." The report went on to say "if troops are to be landed expeditiously and in battle formation the time consumed and the movement of the very few troops transported in this operation served to point up the fact that a transport helicopter carrying at least eight passengers is urgently required." In an entirely optimistic vein, the report concluded:

No unsurmountable obstacles, either theoretical or actual, were developed or experienced that might prevent the future operation of mass landings of troops by helicopters. The operation was entirely successful in that its limited objectives were reached. No attempt, however, was made to fully exploit the

capabilities of rotary wing aircraft. Much remains to be done in the future and these operations must continue to be thought of as experimental and developmental.⁴⁴

After PACKARD II, HMX-1 provided aerial demonstrations and transportation to various groups, both military and civilian. In addition, experiments were made with an aerial public address system for directing traffic, troop movements, or rescue work. High-speed wire laying was successfully tested in conjunction with the Marine Corps Equipment Board, which had been evaluating various dispensers under all climatic conditions. By August of 1948, two new arrivals sparked the interest at HMX. The first Bell helicopter was flown to HMX-1 from Lakehurst, New Jersey. It was a three-place craft powered by a 178-horsepower motor. Dubbed the HTL-2, it was suitable for reconnaissance, artillery spotting, or aerial photography. No familiarization flying was necessary for this model as

the pilots who trained at Lakehurst had been given their first 15 hours of flight instruction in this light aircraft.⁴⁵

The great event of the year was the arrival at HMX-1 of the first HRP-1. It was the largest helicopter in operation at that time. The HRP-1 was a Piasecki-built, 10-passenger helicopter, powered by a 600-horsepower engine driving twin rotors. The maximum speed at sea level was 100 miles per hour and 75 miles per hour represented the cruising speed. It had a cargo space about 14-feet long and 5-feet wide with a cargo hoist of 400 pounds capacity and a cable length of 100 feet. Because of its elongated and curved configuration, the HRP-1 was nicknamed the "flying banana." By the end of the year, four more HRP-1s were delivered to Quantico where flight indoctrination training continued both for pilots and crews. This preliminary stage was followed by an inten-



HRP-1s spotted on the flight deck of the USS Palau ready to load troops and equipment in June 1950. (USN Photo #707741).

sive program of testing tactics and techniques for landing assault troops in an amphibious operation.⁴⁸

Phib-31

The evolution of a set of principles governing helicopter employment cannot await the perfection of the craft itself, but must proceed concurrently with that development.⁴⁹

As if following a script written a generation before, the MCS had prepared a tentative doctrine on the employment of helicopters before there was any appreciable amount of helicopters in the world. The Army's air mobile divisions can only be the outgrowth of what the Marine planners of 1948 envisioned—a Marine helicopter wing composed of 240 aircraft, "each capable of carrying a payload of fifteen (15) fully armed troops or four thousand (4,000) pounds of cargo." There were not at that time as many as 240 helicopters in the entire world. The planners at MCS envisioned a "simultaneous lift of one RCT (regimental combat team), helicopter borne." They continued that "where helicopters are of lesser capacity the numbers of helicopters in helicopter units should be increased as necessary to provide for maintaining the tactical integrity of troop organizations."⁴⁸

The tentative doctrine for helicopters, in mimeograph instructional form, was revised after PACKARD II in May 1948. Revisions were made in consonance with operations at HMX-1 and finally with the arrival of the first HRP-1 machines.

In November 1948, a 52-page booklet was published by MCS entitled "Amphibious Operations—Employment of Helicopters (Tentative)." As the 31st in a series of manuals on amphibious operations, the production was usually referred to as *Phib-31*.^{*} The booklet was initially classified "Confidential" and approved for instructional purposes in MCS. The purpose of *Phib-31* was contained in the preface:

The advent of the troop carrying helicopter and its establishment as standard equipment within the Marine Corps gives rise to a variety of questions

related to the employment of such conveyances in the conduct of amphibious operations. It is the purpose of this pamphlet to explore the various aspects of helicopter employment, discerning the manner in which the characteristics of the vehicles can be best exploited to enhance the effectiveness of the amphibious attack, and providing thereby the basis for a body of doctrine governing helicopter landing operations.⁴⁹

Phib-31 contained the following sections: Introduction, Organization and Command, Tactical Considerations, Embarkation, the Ship-to-Shore Movement, Fire Support, Logistics, Communications, and Characteristics of HRP-1 and HO3S-1. Much of the spadework had already been done in amphibious manuals of prehelicopter days, and the basic principles governing the conventional amphibious attack were still generally applicable. While the limitations of rotary-wing aircraft were apparent at the time, *Phib-31* took into account the potential advantages:

The ability of the helicopter to rise and descend vertically, to hover, and to move rapidly at varying altitudes all qualify it admirably as a supplement or substitute for the slower, more inflexible craft now employed in the ship-to-shore movement. Furthermore, its ability to circumvent powerful beach defenses, and to land assault forces accurately and in any desired altitude, on tactical localities farther inland, endow helicopter operations with many of the desirable characteristics of the conventional airborne attack while avoiding the undesirable dispersal of forces which often accompanies such operations. The helicopter furthermore, when transported to the scene of operations in aircraft carriers, makes operations possible at ranges which have not yet been achieved by the existing conventional carriers.⁵⁰

The MCS doctrinal work on the employment of helicopters came full-circle with the publication of *Phib-31*. The helicopter with its nicknames of "whirlybird," "flying windmill," "eggbeater," "flying banana," and the like, was certainly here to stay. What remained was how the military services would use this new and improving craft. The Marine Corps, seeing the vast possibilities in the craft, would have it fully and rapidly developed, as it was fully committed to new techniques of amphibious warfare. In these early years, the Navy and Coast Guard attitude toward their helicopter programs was more of progression rather than expansion. The Army was primarily interested in the helicopter for its logistical possibilities, envisioning it as a successor to the truck. The Air Force looked at the helicopter chiefly as an air-rescue craft.

^{*}*Phib-31* was written by then Colonels Victor H. Kruiak and Edward C. Dyer. Krulak recalls that "we had so little to go on, no data; just conviction." LtGen V.H. Krulak ltr to Director, M.C. History, dated 3 August 1970 (Historical Division, Headquarters, U.S. Marine Corps).

By the end of the decade, the Marine Corps experimented with the helicopter in cold weather operations off Newfoundland and at the other extreme, tested it under tropical conditions off the coast of Puerto Rico in the Atlantic Fleet Exercise in 1949. On the other side of the world, in Tsingtao, China, a Marine captain, Wallace D. Blatt, flew an HO3S-1 helicopter as a rescue aircraft during the American withdrawal from China in February 1949.⁵¹ In May 1949, HMX-1 participated in PACKARD III, off Onslow Beach, and among its new techniques it deployed an HTL-2 helicopter from a Landing Ship Tank (LST) for spotting operations. HMX-1 subsequently recommended that "the operation of small helicopters from LST's be further pursued by the operating forces of the fleet."⁵² In May and June 1949, HMX-1 gave demonstra-

tions in techniques of wire laying, evacuation of casualties, and flying crane lifts of 75mm pack howitzers before the 81st Congress and President Harry S. Truman at Quantico. The amphibious doctrine and boat development in the late thirties just prior to World War II was similar to the helicopter employment doctrine and development of various craft prior to the Korean War. The Marine helicopter program was overtaken by the Korean War by June 1950. It was only 30 months since HMX-1 was activated and the time in which to evaluate the capabilities of a new type of aircraft was short. In Korea a good deal would depend on the experience of HMX-1 and the doctrinal conclusions of the MCS since it was a truism of history that no new weapon is any better than the doctrines and techniques behind it.⁵³

CHAPTER V

THE FIFTIES: MASSIVE RETALIATION, PEACEFUL COEXISTENCE, AND NUCLEAR STALEMATE

Introduction

The fifties, beginning with a conflict in Korea, saw the end to the fighting and signing a truce in July 1953. At the time, it looked as if the United States had fought the last "conventional" war. We were in the midst of the Cold War and well advanced into the nuclear age. The new Republican Administration was in office about a year when Mr. John Foster Dulles, the Secretary of State, announced in January 1954 the new national defense policy based on "massive retaliation." As in any decade, the foreign relations of the United States were guided by the strength of the military posture. Our military strength in the mid-50s looked good as far as nuclear stockpiles were concerned, and by the end of the decade we were busy catching-up with the Russians on perfecting intercontinental ballistic missiles.

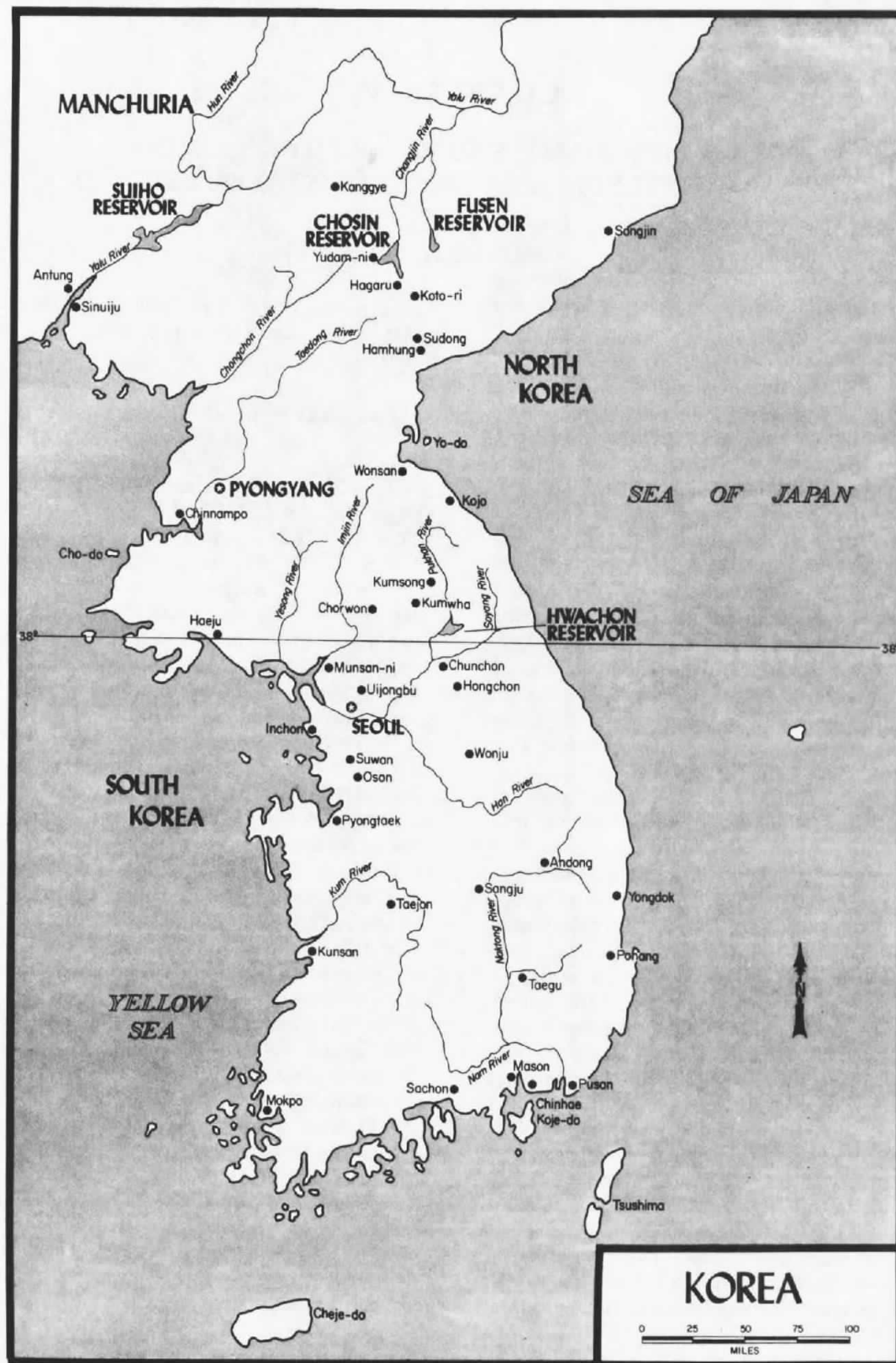
Military planners, taking into account United States defense policies, had to consider a nuclear solution to the next war. But as the decade came to a close, it was believed that Russia and the United States had so increased their capacity to destroy each other that nuclear or total war was completely outside the realm of rational policy. A policy of "Peaceful Coexistence" became fashionable. Nuclear "stalemate" replaced nuclear "superiority" as the principal deterrent to total conflict. In place of total war, the Communists chose the tactic of using war by proxy, war by satellite, war by threat and subversion. In the 1950s, the United States met the war by threat with the Formosa Resolution in 1955 and the landings in Lebanon in 1958. At the Inter-American Conference in Caracas in 1954, we met the threat of subversion in Guatemala by a multilateral anti-Communist resolution and support for an anti-Communist

government. By the 1960s, we would be destined to fight in a proxy war, the unconventional war of the guerrilla.

The Status of the Marine Corps in the 1950s

The Marine Corps came of age, as it were, when in June 1952, Public Law 416, 82d Congress, was passed giving the Marine Corps, for the first time in its history, a voice in the highest military councils in those matters that directly concerned it.

To go back several years, in 1947 Congress enacted the National Security Act which set up a new organization for national defense. This act created a National Military Establishment consisting of three executive or military departments of cabinet level and the Joint Chiefs of Staff (JCS), all under the "general direction, authority and control" of a Secretary of Defense, who was given a small staff to help him provide policy guidance and high-level coordination for the separate departments in his charge. The basic act did not clarify the specific roles and missions of the different services. As an example, the Air Force philosophy, simple in theory but difficult in practice, had the view that everything that flies should be under Air Force control. Obviously, Marine and Navy air thought otherwise. In order to correct "overlapping" in the basic law, President Harry S. Truman issued Executive Order 9877 entitled "Functions of the Armed Forces," spelling out specific roles and missions. Again different interpretations of the basic law and the executive order varied, which led to the Key West Conference in March 1948. At this conference, Secretary of Defense Forrestal met with his top civilian and military aides to in-



interpret and adjust the roles and missions of the services to conform to the legislative requirements of the National Security Act. This conference resulted in agreement on a document designed to define more specifically, and to amplify, the basic functions assigned in law.

On 21 April 1948, the President revoked Executive Order 9877 and directed the Secretary of Defense to issue the statement of functions agreed to at Key West. This the Secretary did in a directive entitled "Functions of the Armed Forces and the Joint Chiefs of Staff," also referred to as the Key West Agreements and by the short title "Functions Paper." In another major change to the basic law, the National Security Act Amendment of 1949 was passed establishing the Department of Defense as an executive department, and creating a deputy and three assistant secretaries. The Departments of the Army, Navy, and Air Force were reduced in status to "military departments," whose Secretaries no longer enjoyed cabinet status or statutory membership in the National Security Council.

Public Law 416 of the 82d Congress, enacted 28 June 1952, specifically applied to the composition and missions of the Marine Corps. It provided:

(1) The strength of the Marine Corps should be not less than three combat divisions and three air wings.

(2) The Commandant of the Marine Corps should have co-equal status with members of the Joint Chiefs of Staff in matters of direct concern to the Marine Corps.¹

The Joint Chiefs of Staff and the CMC are furnished with an agenda listing the items to be discussed before each meeting. If there are items on the agenda of direct concern to the Marine Corps, the CMC attends the meeting and participates as a co-equal member. In the first year after the passage of the law, the CMC had attended 84 meetings of the Joint Chiefs to deliberate upon 175 items of direct concern to the Marine Corps.² Aside from the CMC, Marine officers for the first time began serving on committees of the Joint Chiefs of Staff organization such as the Joint Strategic Plans Committee and Joint Logistics Plans Committee.

Other changes in the National Security Act were the Reorganization Plan No. 6 of 1953 and the Defense Reorganization Act of 1958. These changes gave greater authority to the Chairman of the Joint Chiefs of Staff and es-



General Clifton B. Cates, 19th Commandant of the Marine Corps, 1 January 1948 to 31 December 1951. (USMC Photo #A42546).

tablished a different chain of command running from the President to the Secretary of Defense through the JCS to the commanders of unified and specified commands.³ The "Functions Paper," still intact from 1948, was revised in 1953 and on 31 December 1958 it was promulgated as Department of Defense Directive No. 5100.1, subject: "Functions of the Department of Defense and Its Major Components." The contents of this directive have since been included in Joint Chiefs of Staff Publication 2, "Unified Action Armed Forces (UNAAF)" of November 1959.

In 1953, the Secretary of the Navy approved and issued two General Orders, Numbers 5 and 19, that directly affected the Marine Corps. These orders changed the position of the Marine Corps within the Department of the Navy, elevating the Commandant to a position comparable to the Chief of Naval Operations. The changes gave further recognition to the fact that there were Marine Corps forces other than those assigned to the Operating Forces and Shore Establishment of the Navy. In addition, the authority of the Naval District Commandants as it pertained to the Marine Corps became limited. Control responsibilities previously exercised by the District Commandants were given to commanders of Marine Corps forces within the district and to the CMC.



Naval gunfire support from the 16-inch guns of the USS Missouri firing on North Korean positions at Chong Jin in October 1950. (USN Photo #421049).

The Marine Corps fared well in the 1950s, coming into its own and truly becoming a partner on the defense team.

Korea—The Test

A month after the Korean truce of 27 July 1953, General Lemuel C. Shepherd, Jr., CMC stated:

It is not the Navy Yard Guards or the Ships' Detachments or the State Department Security Forces that give us our fundamental strength. These are all fine and useful elements of our Corps, but realistically it is the ability to go into combat with our ground and air elements on short notice; to do *what* is required *when* it is required, that gives us our real strength.⁴

General Shepherd had in mind Korea, where in such a test the Marines on short notice activated the 1st Provisional Brigade on 7 July 1950 under the command of Brigadier General Edward A. Craig. Exactly one week later, the ground element, a reinforced regimental combat team (RCT), sailed from San Diego to the Far East. The air component, commanded by Brigadier General Thomas J. Cushman, consisted of three fighter squadrons and an observation squadron of Marine Aircraft Group (MAG) 33, 1st Marine Aircraft Wing. Included in this air strength was the first helicopter unit in history to be trained and organized for combat duty, the 7 officers, 30 enlisted men, and 4 HO3S-1 aircraft of the rotary-wing unit of Marine Observation Squadron (VMO) 6. To

complete the squadron, there were eight OY-2 planes, fixed-wing, with eight officers and 43 enlisted men. Under the command of Major Vincent J. Gottschalk, VMO-6 sailed for Korea on 14 July under the operational control of the brigade and the administrative and logistical control of the 1st Marine Aircraft Wing.⁵

The mission of VMO squadrons had been stated in 1949 as the conduct of "tactical air reconnaissance, artillery spotting and other flight operations within the capabilities of assigned aircraft in support of ground units."⁶ The definition left plenty of room for the helicopters to show what they could do under combat conditions. The first demonstration came on the very first morning in Korea, when General Craig and his aides utilized the rotary-wing aircraft not only for reconnaissance but also for locating assembly areas and directing troop movements. During the most critical phase of the Chosin operation, the helicopters provided the only liaison between isolated commands. Wirelaying by air was first employed by VMO-6 during the second battle of the Naktong River Bulge, in September 1950.



General Lemuel C. Shepherd, Jr., 20th Commandant of the Marine Corps, 1 January 1952 to 31 December 1955 (USMC Photo #A46471).



Hospital Ship Repose used for the evacuation of the wounded at Inchon Harbor, Korea, 1952. The platform where helicopters landed is shown. (USMC Photo #A134641).

The value of the helicopter for the evacuation of the wounded became immediately apparent and VMO-6 did its job well. A wounded Marine could be transported from the front line to a hospital ship, perhaps 20 miles away, within 30 minutes. The United States Hospital Ship (USHS) *Consolation* was outfitted with a helicopter loading platform in July 1951 and eventually all hospital ships had such landing platforms. VMO-6 was joined on 31 August 1951 by Marine Transport Helicopter Squadron 161 (HMR-161) with its 15 new 10-place HRS-1s. This was the first such helicopter squadron in history. While evacuation of the wounded was a secondary mission for both VMO-6 and HMR-161, the importance of this mission lay in the fact that nearly 10,000 wounded Marines were evacuated by helicopter, 7,067 of whom were flown out by VMO-6 and another 2,748 by HMR-161.⁷

The first step toward using the helicopter in the mission most closely envisioned by Marine Corps planners, that of transporting troops and supplies in support of ground operations, was accomplished on 13 September 1951. In Operation WINDMILL I, HMR-161 carried out the first Marine mass helicopter combat resupply operation in history in a one day's lift of supplies in the Soyang River vicinity. A total of 28 flights was executed in overall time of 2½ hours (total flight time of 14.1 hours) to transport 18,848 pounds of equipment and 74 Marines a distance of seven miles.⁸

Marine Corps General Order No. 85, of 15 February 1951, proclaiming the doctrine of

vertical envelopment was only in effect 59 days when HMR-161 transported 224 fully equipped Marines and 17,772 pounds of cargo from the reserve area to the main line of resistance. This was the first helicopter lift of a combat unit in history. On 11 November 1951, in Operation SWITCH, HMR-161 transported nearly 2,000 troops in 12 HRSs in 262 flights in an overall time of 10 hours (95.6 hours of flight time).⁹

In Operation HAYLIFT II, from 23 to 27 February 1953, HMR-161 set an all time cargo-carrying record when it lifted over a million and a half pounds of cargo to supply completely two regiments with daily requirements for a five-day period. This task represented a total of 1,633 lifts and 583.4 flying hours for the operations. Other tasks that became routine included ammunition resupply from the ammunition supply point to the front line, and a complete lift of a 4.5-inch rocket battery with personnel and rockets from one firing point to another. In July 1952, HMR-161 answered the call from the Army to evacuate 1,172 Army troops cut off by heavy rains in the Chunchon area of western Korea.¹⁰

Speaking in the same vein, about saving lives, two other innovations came out of the Korean War, the thermal boot and the armored vest. A limited test of body armor was made during the late months of World War II but tests were discontinued after the war had ended. The Marine Corps, through the Field Medical Service School at Camp Lejeune, North Carolina, had renewed the development of a lightweight plastic body armor. It was a



Marine helicopter (Bell HTL) lands on the Repose. (USMC Photo #A163539).



An HRS-Sikorsky helicopter from the 1st MAW lands on Hospital Ship Repose. (USMC Photo #A163539).

sleeveless jacket with zipper front and water resistant green cloth with armor consisting of ballistic nylon and curved plates, similar to fiberglass. The vest weighed $7\frac{3}{4}$ pounds and provided protection for the wearer against missiles of a velocity of 1,200 feet-per-second or less.¹¹

By 30 January 1952, 500 of the armored vests had arrived in the 1st Marine Division for testing. The vests became a satisfactory and desirable item of equipment. By July 1953, the division had received its authorized quota of 24,000 vests. Since 70 percent of all battle casualties came from wounds in the chest, back, or abdomen, the vests prevented many wounds to those parts of the body with resultant lives saved and a boost in morale. By the end of the war, the armored vest or "flak jacket" was joined by another piece by body armor to protect the lower torso. This lower torso body armor resembled drawers and weighed about 3 pounds. It was worn as a supplementary item with the armored vest.¹²

If the thermal or vapor-barrier boot did not save lives, it certainly saved Marines from frostbite from the cold and gave comfort to those who wore them. In the first winter of the war in 1950, inadequate footgear and the shortcomings of shoepacs, the existing winter gear, caused serious frostbite cases. The dark days of the Chosin Reservoir and the move to the sea did not lend themselves to men stopping and changing socks in order to prevent frostbite, even if they had dry socks. By the second winter, thermal or "mickey-mouse" boots were

available and foot frostbite was virtually eliminated. In a rather bizarre side effect, the thermal boot was found to afford some protection against land mines, perhaps because of its cumbersome shape and weight.¹³

Optimum Organization and the Boards

As we have seen from Chapter IV, the guiding doctrinal publication for the tactical employment of helicopters was *Phib-31, Amphibious Operations—Employment of Helicopters (Tentative)*, prepared by MCS and used throughout the Korean War. In spite of the war, however, in December 1952, the Navy and MCS began publication of a related series, the Navy's Naval Warfare Publication (NWP-22) and the Marine Corps' Landing Force Manuals (LFMs) and Landing Force Bulletins (LFBs). These publications replaced the Current Tactical Orders and Doctrine, U.S. Fleet series (USFs), and included the doctrines and techniques for the execution of the helicopter-borne amphibious assault based on *Phib-31* of 1948.

In February of 1953, a major original doctrinal contribution was made by the Marine Corps with the publication of Landing Force Bulletin 2, *Interim Doctrine for the Conduct of Tactical Atomic Warfare*. This document presented a concise and mature approach to the conduct of operations wherein atomic munitions are employed. At the time of its publication, this paper was the only doctrinal source of its kind promulgated by any of the armed forces. Other important LFBs published in the 1950s were LFB No. 17, *Concept of Future Amphibious Operations* and LFB No. 24, *Helicopter Operations*.

Concurrent with the publishing of LFMs and LFBs at MCS, the Marine Corps was involved with study boards. The boards, appointed by the CMC, met either at Quantico or Headquarters Marine Corps to study current problems and to make recommendations accordingly. At all times, the boards, regardless of what they studied, had to keep in mind the major concepts of the time, namely, the "new" concept of amphibious operations—dispersion of ships and possible tactical employment of atomic weapons—and the doctrine of vertical envelopment. To meet such concepts most of the boards during the 1950s concerned themselves with organization and structure of a lighter and faster Marine Corps. Some ex-

amples of these boards and their range of studies were:

Report of Board to Study and Make Recommendations on Air-Ground and Aviation Matters (Harris Board), headed by Major General Field Harris, August 1951.

Report of Board to Review the Basic Organizational Structure of the Fleet Marine Force, Ground (Wornham Board), headed by Major General Thomas A. Wornham, April 1952.

Report of Board to Review Aviation Organization in Order to Achieve Personnel Economy (Condon Board), headed by Brigadier General John P. Condon, February 1953.

Report of Board to Review Headquarters Organization of Fleet Marine Force, Atlantic for Tactical and Administrative Purposes (Hogaboom Board), headed by Major General Robert E. Hogaboom, June 1953.

Report of Board to Study Characteristics of Fleet Marine Force Ground and Air Units (Snedeker Board), headed by Brigadier General Edward W. Snedeker, October 1953.

Report of Board to Study the Composition and Functions of Marine Corps Aviation (Smith Board), headed by Colonel John L. Smith, February 1955.

In addition, the Commandant issued individual directives and reports on matters pointing to organization and doctrine for the future years of the Corps. Included in this category were CMC letters, with subjects as follows:

Air-Ground Relations, July 1954

The Marine Air-Ground Task Force Concept, November 1954

Provisional Force Service Regiment, February 1955

Concept for Logistic Support of the Landing Force, August 1955

Employment of Marine Corps Aviation, January 1956

Recommendations from whatever source had to be tested in the field. The CMC accordingly authorized the activation of Marine Corps Test Unit No. 1 (MCTU #1) in the summer of 1954, under the command of Colonel Edward N. Rydalch.¹⁴ Its organization was equivalent to a reinforced infantry battalion, expressly for the purpose of developing tactics and techniques in support of the conduct of tactical atomic warfare. The principal highlight of the first year of operations was the unit's participation in Exercise DESERT ROCK VI, conducted at the Atomic Proving Ground in Nevada, in February 1955. The Marine 3d Provisional Atomic Exercise Brigade, comprising MCTU #1 and Marine aviation elements, was involved in the exercise. The CMC reported that "despite the inevitable artificialities, the exercise served to con-

firm Marine Corps theories and to provide a sound footing for projected efforts."¹⁵

By the end of the fiscal year 1955-56, MCTU #1 had completed testing 33 projects. Some of these focused on such weighty problems as the determination of what echelon of command should possess the capability of surface-to-surface delivery of atomic weapons. Primarily, solving the problems endemic to battalions and smaller units was emphasized by MCTU #1. During 1956 and until 30 June 1957, when the unit was disbanded, MCTU #1 completed 27 additional projects. The variety of tests and reports submitted by MCTU #1 ranged from determining size of a TACC controlling CAS to the distance helicopters should be from enemy atomic weapons.

The unit participated with other Fleet Marine Force, Pacific (FMFPac) units with the use of the USS *Thetis Bay*.¹⁶ The *Thetis Bay* was the first of a series of ships converted to serve as transports for helicopter landing teams. The Navy, again endeavoring to meet the needs of the Marine Corps, recommissioned the old escort-carrier in 1956, which became the first assault helicopter transport, LPH-1.

In 1956, the CMC appointed a study board,



General Randolph McC. Pate, 21st Commandant of the Marine Corps, 1 January 1956 to 31 December 1959. (USMC Photo #A402599).



Marines turn their backs to ground zero during rehearsal for Operation DESERT ROCK VI, at Yucca Flats, Nev., 1955. (USMC Photo #A327428).

whose recommendations a year later would change the basic structure of the FMF for the next several decades. The board that convened at the MCS on 4 June 1956 had as its president, Major General Robert E. Hogaboom. The board was instructed to "conduct a thorough and comprehensive study of the Fleet Marine Force and make recommendations to

the Commandant of the Marine Corps for the optimum organization, composition and equipping of the Fleet Marine Force in order to best perform its mission."¹⁷

The Hogaboom Board in its deliberations had to keep in mind what the Navy and Marine Corps viewed as a proper approach to the "new" concept of amphibious warfare. Concisely, the concept was as follows:

The assault is initiated by landing troops by helicopter to the rear and on the flanks of the desired landing beaches. These troops, supported by naval gunfire and air, then proceed to clear out the enemy defenses and seize the beaches from the rear. The beaches are then rapidly cleared of obstacles and prepared to receive landing craft and landing ships. The helicopters are subsequently used to provide tactical mobility for the troops ashore and to supply the widely dispersed tactical troop units.¹⁸

There were those in the Navy who believed that:

At some time in the distant future it may be possible to build vertical rising and landing aircraft of sufficient speed, endurance and cargo capacity to make landings entirely by these craft. They would also, of course, have to be small enough to be transported in and operated from the decks of ships.¹⁹

Whatever the means for future ship-to-shore movement, whether it be helicopter or landing boats, the Navy felt that Navy ships would have to bring that means within range of the beaches.

There were those people in the Marine Corps who also believed that *all* movement



Atomic blast of Operation DESERT ROCK VI. (USMC Photo #A327288).

from ship-to-shore would be by helicopter in the "foreseeable future." The Hogaboom Board disagreed with this view. The board reported that it was working on problem areas in most cases that did not extend beyond "five to six years and in no area beyond about ten years." The "all" movement was not in that range of time. The board cautioned the "all" movement thinkers that the "all helicopter assault" should not become the "all helicopter concept." It said it believed this to be invalid and that it should be corrected immediately. In very simple terms the board laid to rest the "all helicopter concept":

The Board believes that this line of thinking has perhaps obscured the continuing importance of crossing the beach operations in our modern concept. We believe that for the foreseeable future a substantial portion of the men and material required in effecting a lodgement on a hostile shore must still cross the beach in a "conventional" fashion. This is not in our opinion inconsistent with the "all helicopter assault" concept, or with the requirement for the projection of seapower ashore without the necessity of direct assault on the shoreline. Reduced to its simplest terms the Board visualized an operation wherein the flexibility of the helicopter-borne assault forces would be exploited to uncover and secure the beaches and to seize critical areas which will be required to enable us to phase in the additional means to maintain the momentum of the assault and secure the objective area. The Board considers that helicopters will be employed initially to displace the assault elements of the landing force from ships at sea to attack positions ashore from which they can seize the critical terrain features. In subsequent operations ashore helicopters will be employed to maneuver disengaged units into attack positions from which they can launch an attack against critical objectives at a decisive time.²⁰

The Hogaboom report was forwarded to all major commands within the Marine Corps "for information." But the CMC stated that it was approved for "purposes of staff planning at this headquarters."²¹ The value of the board report was that it had taken a thorough and objective look at existing doctrine and concepts and in many cases, such as the employment of Marine aviation, affirmed that they were basically sound. Other concepts such as the "all helicopter assault" and the "Marine-Air-Ground Task Force" were given approval but more definition and clarification of some aspects of both was needed. The board's recommendations for the change in structure of the ground forces of the FMF and in particular the division were, with few exceptions, accepted in total by the Marine Corps. A review



Major General Robert E. Hogaboom, president of the board that restructured the Fleet Marine Force in 1956. (USMC Photo #A401975).

of the current T/Os reflects substantially what the board recommended in 1957.²²

After much study and comparison of the then-projected pentomic structure of the Army's division, the board maintained the integrity of the triangular structure of the Marine division at the regimental level—three regiments consisting of three four-company battalions. Other major changes, recommended by the board and subsequently adopted by the Marine Corps, were:

1. Tank battalion taken out of the division (then under the "L" Series T/O) and placed in Force Troops.
2. Ontos battalion added.*
3. Reconnaissance battalion added, replacing reconnaissance company.
4. Service regiment replaced by a service battalion.
5. Shore party battalion deleted and shore party function incorporated into service battalion.
6. Engineer battalion changed to a pioneer battalion with reduced personnel and equipment.**
7. Hospital company deleted from medical bat-

*Ontos battalion is listed as antitank battalion in 1970 T/O.

**Name rechanged to engineer battalion as shown in current T/O.

talion and a fourth collecting and clearing company added.

8. Infantry and artillery regimental headquarters become purely tactical in function.

9. Infantry regimental 4.2-inch mortar company, antitank company, and battalion weapons companies were all deleted.

10. A fourth rifle company added to the infantry battalion.

11. The artillery regiment reorganized and re-armed.

12. A communication intelligence company added to division headquarters battalion.²³

The board reported the following:

The Marine division has been lightened considerably by personnel reductions in headquarters, supply, maintenance, and other supporting elements and by equipment reductions in tanks, artillery, motor transport, heavy engineer equipment and heavy maintenance equipment. The resulting division is air transportable—and its assault elements are helicopter transportable. It is a well-balanced fighting entity capable of effective ground assault operations under conditions of either conventional or nuclear warfare. For sustained operations, this division requires additional external support. This support is furnished by Force Troop units, the numbers of which are based on the requirement to support at least one Division/Wing task force in each Fleet Marine Force.²⁴

Techniques and Hardware Development During the 1950s

The list of projects investigated, tested, and completed by various agencies, internal and external to the Marine Corps, ran into hundreds of items during the decade. The range included successful development of lightweight radio relay communication equipment to the issuance of a new ration, "Meal, 25-in-1, Landing Force." In addition, work on dehydrated foods was being conducted. While the average Marine who ate at the battalion messhall would probably find it hard to believe, a pilot program, instituted by Food Service Demonstration Teams and the various Cooks and Bakers Schools, attempted to indoctrinate Food Service Personnel in newly developed methods of preparing and servicing dehydrated foods.

One of the major problems confronting the Marine Corps in perfecting its new tactical doctrine was that of providing operating facilities for aircraft ashore in the objective area, early in an amphibious operation. The construction of long concrete or asphalt runways for jet aircraft was virtually impossible in a landing operation. To eliminate the need for such runways, research was begun in 1954 on

the problem of constructing an expeditionary airfield, long enough to land a jet plane, refuel it, and to have it take-off, all within the early stages of the operation. The rather successful conclusion to this problem, which indicated the development programs had paid full dividends, was installed at Chu Lai in the Republic of Vietnam in 1965.²⁵ The 15 odd years of hard work at the Development Center in developing and refining such a solution lies in a concept called "Short Airfield for Tactical Support" or SATS. The concept envisions the rapid establishment of hastily constructed or rehabilitated airstrips from which tactical aircraft can be operated through the use of launch and arrest equipment. The SATS today is a kind of a shorebased carrier deck. The deck, AM-2 matting, however, is aluminum and air transportable and the basic runway measures about 2,000 feet by 72 feet. Many elements make up the SATS including a CE-2 catapult, a shore-based expeditionary catapult powered by a J-79 turbo jet engine; an arresting gear called the MK-5 MOREST, a relatively heavy (74,000 lbs.) arresting system operating on the hydraulic ram principle; a Fresnel Lens Optical Landing System, consisting of a self-contained source light system that provides glide slope information to the pilot which enables him to make a precise landing into SATS arresting gear; and TACAN, Tactical Air Navigation System, composed of airborne and ground equipment operating at ultra high frequencies which provide pilots with continuous range and bearing information.

Formal test evaluation of the concept with selected equipment was directed in 1958 with the establishment of Project 51-58-01 at MCDC. The first airfield test under this project was conducted at the Marine Corps Air Station, Beaufort, South Carolina in 1959.²⁶ The first operational test of a complete expeditionary jet airstrip was made in March 1960 during Exercise BLUE STAR. This test was conducted in an amphibious assault environment on Taiwan by elements of the 3d Marine Division and the 1st Marine Aircraft Wing. A 3,400 foot by 36 foot airstrip with all-weather air control and complete aircraft servicing facilities was established on the site of an abandoned Japanese fighter strip within 70 hours of the commencement of beach unloading. One hundred and eighty Marine engineers resurfaced the BLUE STAR runway with aluminum matting. It was again tested on

Vieques Island during February 1961. At that time the airfield was constructed, in the main, on an old airstrip with a portion of it on an unprepared surface. The length of the airfield was reduced from the one tested on BLUE STAR to only 2,150 feet.²⁷ Short Expeditionary Landing Fields (SELFs), consisting of a SATS minus the expeditionary catapult, were established at Quantico and Bogue Field, North Carolina. In 1964, SATS was established along the southern coast of Spain during Operation STEEL-PIKE I. The use of it during STEEL-PIKE was a great success. In only 51½ days the SATS field was fully operational and ready to receive an F8 Crusader squadron as it flew in from the United States. "Nothing was used from the land. All matting and all control installations and fuel farm were landed over the beach."²⁸

The problem of attacking ground targets without visual reference by the aircraft crews was solved with the introduction at the end of World War II of radar-controlled bombing equipment. With little refinement this equipment was introduced into the Korean War in the summer of 1951 by the U.S. Air Force using the MPQ-2 radar.* Based on a concept oriented towards deep support of troops in extended land campaigns, the Air Force system made use of 20-ton vans to house its ground components. Thus, the MPQ-2s used by the Air Force in 1951 were primarily for strategic long-range bombing as opposed to tactical bombing.

It was during this time, 1951, that the Marine Corps was developing a radar bombing system, to be used tactically and specifically designed for amphibious operations. The Marine system, called the MPQ-14, was built under the direction of Major Marion C. Dalby at the Naval Air Materiel Test Center, Point Mugu, California. The MPQ-14 reached the combat area of Korea in July of 1951 for evaluation. The unit was designed so that the largest piece could be put into a one-ton trailer. Major ground items included a generator power supply, a tracking radar, and a computer; the last essential component, an automatic bombing control, was mounted in the

aircraft.²⁹ The MPQ-14 was evaluated by the Marine Corps and the Fifth Air Force against two other radar types, the MPQ-2 and MSQ-1 in tests called "PINPOINT ABLE." Even with some mechanical difficulty experienced with the radar bombing, "it soon became apparent that the accuracy (bomb cluster dispersion) of the MPQ-14 was greater than that of either the MPQ-2 or the MSQ-1."³⁰ The MPQ-14 was sufficiently reliable to permit bomb drops within one mile of friendly lines. By the middle of summer 1952, the Marines had obtained Fifth Air Force permission to use the MPQ-14 in a close support role. By the start of the truce in July 1953, properly trained controllers and technicians made up Marine Air Support Radar Team One (MASRT-1), who operated the MPQ-14 on a 24-hour basis. Operations of MASRT-1 demonstrated impressively that the Marine Corps had the capability to provide sustained direct air support to frontline troops under all conditions of weather and darkness in the target area. The development of the Marine MPQ-14 has proven to be a most significant step forward in tactical aviation.

In the field of logistics, the concept of "continuous flow" of supplies across the beach was developed in order to eliminate the buildup of large and vulnerable beach supply dumps. The refinement of this concept provided for the rapid delivery of ammunition, fuel, and other supplies directly to Marine air and ground units deep inland. As had happened many times before, the concept led directly to implementing techniques and related equipment. One of the techniques formulated was that of fuel handling in amphibious operations.

In September 1954, a report of a test of fuel handling was submitted to the CMC by the Development Center, culminating efforts in this area since 1950. The objective of the project was: "To provide the Marine Corps with a suitable amphibious assault bulk fuel handling system for receiving, transferring, storing and dispensing bulk liquid fuels during the initial phases of an amphibious operation."³¹ Small prototypes were tested and used successfully both in Korea and the United States.³² A year later, now called the expeditionary bulk fuel handling system, it was again tested successfully by a Marine aircraft group at Roosevelt Roads, Puerto Rico.³³ The system, a versatile, self-contained, portable, and readily installed complex, was capable of

*The letters MPQ indicate the type of installation. M—mobile ground installation, the kind of electronic equipment, P—radar, and finally, its purpose, Q—intended for a combination of purposes. In this case, the number 2 indicates the model number in the development of the equipment.

receiving, storing, and dispensing motor, aviation, diesel, or jet fuel in quantities well over 300,000 gallons. The tank farms were essentially composed of collapsible 10,000-gallon capacity, rubber, pillow-like tanks with pumps and accessory equipment. Known today as the Amphibious Assault Fuel System (AAFS), it has become one of the many items which permits the execution of "continuous flow" of supplies.

The Marine Corps continued to support selected research and development efforts of other military services by serving on appropriate program and project steering and coordination agencies and contributing funds to joint projects. Interest in various items ranged from the smallest sensing devices to the guided missile programs of the HAWK and REDEYE. For the direct support of ground combat forces, a joint project was established

with the Army in 1958 for the development of "Lacrosse," a field artillery guided missile. The "Lacrosse" missile was first conceived in 1947 by the Marine Corps but was dropped. When the project was reactivated, the initial development work was carried out under Marine Corps and Bureau of Ordnance sponsorship.³⁴ As is the case in many such developmental projects, the eventual decision was made not to purchase the missile.

To round-out the decade, the CMC reported to the Secretary of the Navy in 1959 that "the Marine Corps is closely monitoring the development of hydrofoils, ground effect devices and planing hulls that can be used in the development of high speed amphibious vehicles."³⁵

Within the next two years, the Marine Corps built prototype developmental hydrofoil models, the LVHX-1 and the LVHX-2, a planing hull, LVW-1, and an air lubricated hull model, ARCK-1, to ascertain their capabil-



Bulk Fuel Farm at Chu Lai, 1965. (USMC Photo #A184696).

ities to fulfill its high speed amphibian support vehicle requirements. It also purchased experimental models of ground effects machines or air cushion vehicles for the ship-to-shore movement of troops, vehicles and supplies."³⁶

Research and Development (R&D) Cycle

In addressing a general officers' meeting in 1953, General Lemuel C. Shepherd, Jr., CMC, stated:

I consider it appropriate to recall to your attention the words of the National Security Act of 1947, as amended which say, "It shall be the duty of the Marine Corps to develop those phases of amphibious operations which pertain to the tactics, technique and equipment employed by landing forces." These words are a serious charge to the Marine Corps. They admit of no interpretation. They make it our duty to take the lead in landing force development. True enough, they require us to coordinate with other services, but there is no question as to who is responsible to the Congress in the last analysis. To me that means that the Marine Corps Development Center is our primary developmental agency."³⁷

General Shepherd's words of 1953 are essentially true today. The Marine Corps' development is primarily done at Quantico, where the Development Center is now part of MCDEC, Marine Corps Development and Education Command.

The R&D process, let alone the term, was unheard of in the Marine Corps prior to World War I. In developing the proper balance for an advanced base force, the Marine Corps had doctrinal experience. The 1920s and 1930s produced the doctrine for the whole spectrum of amphibious operations in the publication of the *Landing Operations Manual*. Tactics, techniques, and equipment, particularly at the turn of the century, were by the nature of the times, completely of Army origin. Aside from uniforms and personal equipment, field equipment changed very little. It was in the 1930s and 1940s that the "Marine" tactics, techniques, and equipment development came into their own.

Before tracing Marine Corps involvement in the R&D process, definitions are in order. Research is theoretical analysis, exploration, and experimentation directed toward the increase of knowledge. Development is the extension of the investigative findings and theories into practical application for experimen-

tal or demonstration purposes. This includes the construction and testing of experimental models or devices. Service Test is the test of a specifically developed item—material, equipment, system, or device—under service or simulated service conditions in order to determine as accurately as possible its operational characteristics or performance and its utility in military operations.³⁸

Today the R&D process takes in the foregoing definitions and many more. The Marine Corps' first step in the process was the establishment of the Marine Corps Equipment Board (MCEB) in 1933 (See Chapter III). This was the first organized attempt to have a group from within the Corps recommend the type of equipment best suited to the needs of the Marine Corps. The development and testing of the equipment recommended could be made by any agency so designated by the CMC, whether it be civilians, such as Donald Roebling or Andrew Higgins, or government, such as the Navy Department Continuing Board for the Development of Landing Boats. Marine Corps representatives were members of this board.

After the Roebling "Alligator" was adopted for military use, inspection and contract follow-up were performed by the Inspector of Naval Material with the assistance of Marine Corps officers. Marine Corps liaison officers were assigned to the Bureau of Ships in order to provide Corps influence in the development.³⁹ During World War II, a Marine Corps liaison officer was assigned to the Army Ordnance Department in 1942. The liaison officer represented the Marine Corps in the formulation of policies and procedures affecting procurement, allocations, and the supply of ordnance material. However, one of the most helpful and profitable duties occurred when he received ordnance information concerning the development of new material or modifications to existing materiel of interest to the Marine Corps.⁴⁰

During World War II, 65 percent of the supplies and material used by the Corps for ground troops was obtained from the Army. "Included were 85 percent of all ordnance items, 75 percent of all food, and 5 percent of all engineer equipment."⁴¹ Of the remaining figures, the "Navy contributed five percent, the Marine Corps manufactured five percent, principally clothing, and the remaining 25 percent was purchased on the open market."⁴²

A substantial amount of signal gear came from the Army but the Bureau of Ships procured all electronic equipment for the Marine Corps.⁴³ Aviation clothing and personal equipment were acquired through regular Marine Corps channels. All aviation materiel, including ground equipment, was developed and supplied by the Navy through the Bureau of Aeronautics.⁴⁴

Also during World War II, the Division of Plans and Policies of HQMC guided the continuous studies of new types of equipment made available within the Navy and Army and made recommendations concerning equipment which should be adopted by the Marine Corps. In addition, it had cognizance over the following:⁴⁵

1. All inventions submitted to the Marine Corps for consideration
2. Maintenance of liaison with the Marine Corps Equipment Board
3. Selection of representatives for committees such as
 - Army Ordnance Technical Committee
 - Naval Liaison Committee on Naval Research
 - Navy Department Continuing Board for Development of Landing Boats.

After World War II, a separate R&D Section was formed within the Division of Plans and Policies. This section, which constituted the first organizational component that formally recognized the R&D program in the Corps, was responsible for all research and development activities. In 1947, the Congress, through the passage of the National Security Act, gave the Marine Corps direct responsibility for amphibious development.

Section 206, (c)—“It shall be the duty of the Marine Corps to develop, in coordination with the Army and the Air Force, those phases of amphibious operations which pertain to the tactics, technique and equipment employed by landing forces.”

For all practical purposes, the law merely declared and recognized certain functions which the Marine Corps had been doing for the past several decades. The immediate problem, after the law was passed, was the lack of a coordinating agency functioning under the CMC to carry out the law. Colonel Merrill B. Twining, Executive Director of the Marine Corps Board at Quantico, stated:

There is serious need for standardization; there is need for providing specifically for a means of Army and Air Force participation and a means must be provided for the Commandant to exercise an authority imposed by law.⁴⁶

By order of the CMC, a board of general officers met at Quantico on 10 July 1950, with Lieutenant General LeRoy P. Hunt as President. The Hunt Board recommended the establishment of a “Landing Force Development Center” to be located at Quantico. The board further recommended that a Tactics and Techniques Board be established and combined with the Equipment Board into the Landing Force Evaluation Group. The newly created group should have the responsibility of studying, analyzing, and evaluating recommendations proposed by the Education and Development Centers in the field of amphibious development. The board also recommended that the Commandant Marine Corps Schools be designated “Coordinator, Marine Corps Landing Force Development Activities” (MCLFDA).⁴⁷ These recommendations were approved by the CMC and were implemented by two letters of August and October 1950.

To further implement the coordinating aspect of MCLFDA, the Joint Landing Force Board for the armed services was established by DOD at MCS to speed interservice agreement on amphibious landing techniques. The Joint Board, headed by Lieutenant General Franklin A. Hart, considered mutual problems of the Army, Navy, Marine Corps, and Air Force in the landing force field.⁴⁸ The Joint Landing Force Board lasted until 1 February 1955 when it was disbanded by the Joint Chiefs of Staff. The board, then at Camp Lejeune, North Carolina, had been responsible for four joint service agreement reports and had published two joint landing force manuals. The Marine Corps Development Center at Quantico took over the joint aspects of amphibious problems.⁴⁹

In March 1952, the responsibilities for research and development within the Marine Corps were revised.⁵⁰ The Division of Plans and Policies was abolished and a general staff organization was instituted at Headquarters Marine Corps. In this HQMC reorganization the R&D Section became a branch of the G-4 Division. While not part of but akin to the R&D process, a Marine Corps Advanced Research Group (ARG) was established at Quantico. The first group, consisting of 10 colonels, was given the mission of conducting advanced study and original research with respect to problems affecting the Marine Corps. The group was under the direct supervision of the Director of the Education Center at

Quantico.⁵¹ The group's course of study and research usually lasted 10 months whereupon its recommendations would be submitted to the CMC. Many recommendations and resultant changes were made through acceptance of their studies. As an example, the Advanced Research Group of 1955-1956 was given the task of determining the adequacy with which the Marine Corps was fulfilling its statutory responsibility for landing force development, and steps which should be taken to achieve improvement. The ARG concluded that the Marine Corps research and development organization required improvements. The ARG stated that the R&D program be given "high level direction, coordination and supervision" to all of its plans and programs.⁵² The G-4 Division, with so many other duties, could not adequately handle the tremendous task of R&D.

As a result of the research group's recommendations, in 1956 the office of the Deputy

Chief of Staff (Research and Development) DC/S (R&D) was created. However, the R&D Branch in G-4 (AO4E) continued to function until 1961 but was responsive to the new DC/S (R&D). In 1961 all AO4E personnel were transferred to the Office of the DC/S (R&D). The primary mission assigned to the deputy was to assist the Chief of Staff in the direction, coordination, and supervision of HQMC staff activities in R&D.⁵³ He was also to direct and supervise the formulation and maintenance of Marine Corps R&D plans and programs. Further, DC/S (R&D) represented the CMC on all departmental and interdepartmental committees, boards, and groups which were concerned with policy making and overall coordination in the field of R&D. Aviation research and development, though monitored by the Marine Corps, was primarily performed through Navy activities. The Marine Corps ended the decade of the 1950s squarely involved in the maze of what was called the R&D process.

CHAPTER VI

THE DECADE OF THE SIXTIES

There is one resource of the Marine Corps that has always been fully developed: the individual Marine. What made a good Marine during the Revolutionary War still makes a good Marine. A competent, loyal, highly motivated Marine is an asset far exceeding in value all the developments of a technological age.¹

General Oliver P. Smith,
USMC (Retired)

The decade of the 1960s began with the oldest President of the United States being succeeded by the youngest. By the end of the decade, two other Presidents had served. The sixties will have to be remembered for the violence at home and abroad experienced by

Americans. Looking back, the violence at home seemed to have commenced with the assassination of President John F. Kennedy in November 1963. Subsequent unrelated violence in the cities and on college campuses tested the basic fiber of American social and political institutions.

In spite of the violence, not because of it, legislative history was made in the decade. The 1964 session of Congress enacted more domestic reform legislation than any session since 1935, the climactic year of New Deal laws.² Before the decade passed into history, Americans, through the Congress, produced



General David M. Shoup, 22d Commandant of the Marine Corps, 1 January 1960 to 31 December 1963. (USMC Photo #A408673).



General Wallace M. Greene, Jr., 23d Commandant of the Marine Corps, 1 January 1964 to 31 December 1967. (USMC Photo #A415346).

the strongest civil rights act in American history, the most aid to education, and medicare, and began the "unconditional war on poverty."

On the international scene, America faced crises with Cuba, the Dominican Republic, North Korea, and North Vietnam. It was, however, the Vietnam War, the longest in America's history, that dominated the 1960s. As in every other war, the Marine Corps was called upon to play its role; it played it well. The Marine Corps' contribution to the peak strength of United States forces in Vietnam of 543,400 men (31 December 1969) was 81,800 men.³ By 30 June 1971, most Marines having been deployed to Okinawa, Japan, Hawaii, and Camp Pendleton, the number left in Vietnam was a little over 500 men. This figure represented advisory, communications, and embassy personnel.

The Vietnam War will probably rank on the level of World War II as the most written about and documented war in American history. Certainly, television brought the war more quickly into America's thoughts than the newsreels of World War II and Korea.

There is a myriad of material that could be discussed regarding the Marine Corps and Vietnam. Two major areas, however, are covered in this chapter, one of peace, that is the participation of Marines in pacification, more specifically civic action. The other area is the refinement of tactical mobility, and use of the fire support base. Neither of these areas were new to the Marine Corps, only to this generation of Marines. Past pacification experiences were incorporated in the *Small Wars Manual* published in 1940 (see Chapter II). Tactical mobility, in the form of helicopter-borne forces, is the fruition of post-World War II Marine thinkers. The Marine Corps envisioned the use of helicopters to carry regimental landing teams before any of the military services, including the Marine Corps, had a working helicopter (see Chapter IV).

Pacification in General, Civic Action in Particular

Pacification, as a concept, successfully carried out, could well become a milestone of the Vietnam War. Within the etymological essence of the word pacification is the meaning of peace. What better way could Americans in Vietnam be remembered than having been in-

volved in pacification. The definition of the term, as approved by the Military Assistance Command, Vietnam (MACV), is as follows:

Pacification is the military, political, economic, and social process of establishing or reestablishing local government responsive to and involving the participation of the people. It includes the provision of sustained, credible territorial security, the destruction of the enemy's underground government, the assertion or reassertion of political control and involvement of the people in government, and the initiation of economic and social activity capable of self-sustenance and expansion. The economic element of pacification includes the opening of roads and waterways and the maintenance of lines of communication important to economic and military activity.⁴

The Marine Corps' role in pacification took the name of civic action. Civic action is that segment of the overall effort of pacification that utilizes the local or military population. Civic action is defined as follows:

The use of preponderantly indigenous military forces on projects useful to the local population at all levels in such fields as education, training, public works, agriculture, transportation, communications, health, sanitation, and others contributing to economic and social development, which would also serve to improve the standing of the military forces with the population.⁵

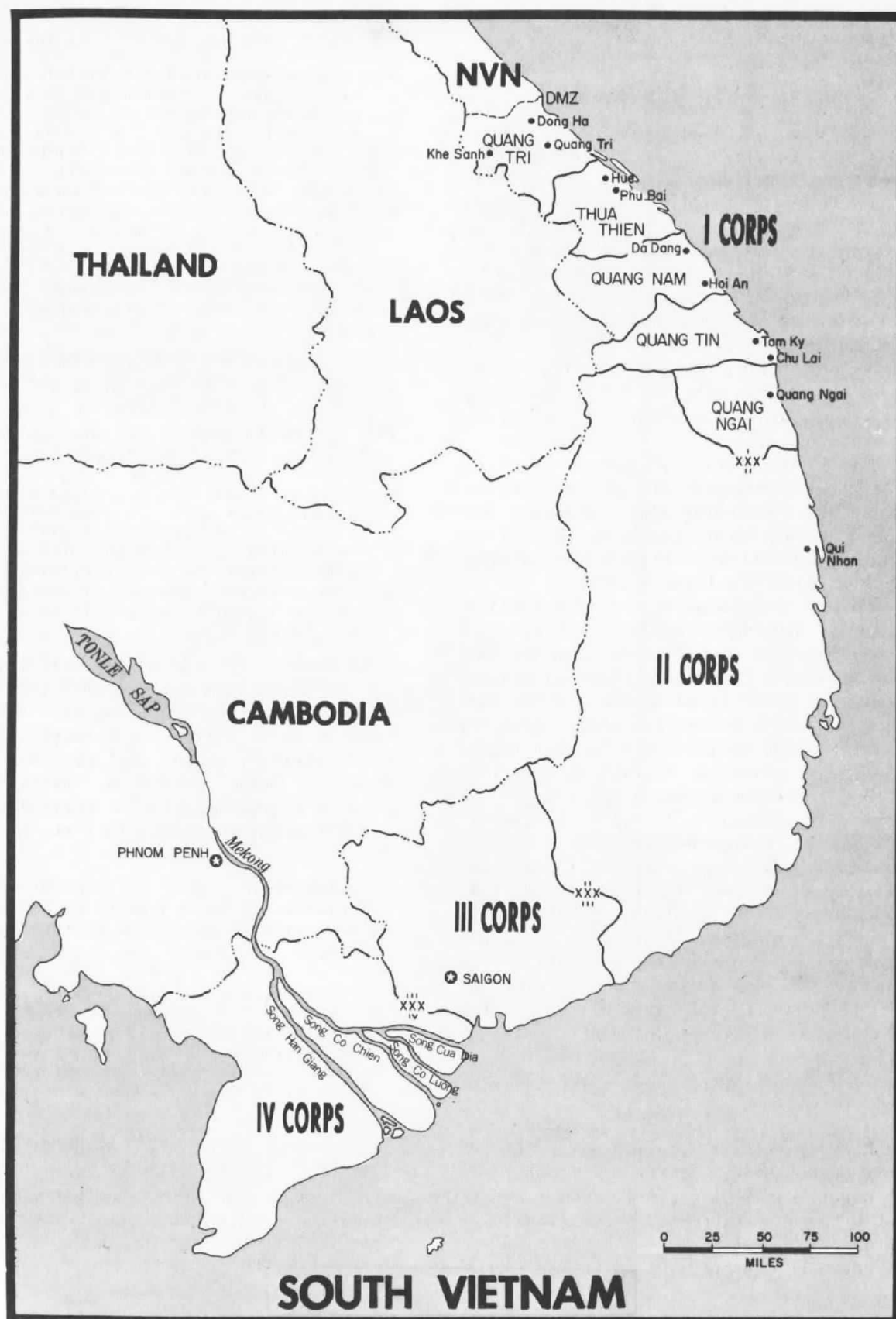
To reiterate, the involvement in civic action by the Marine Corps was not new. The Marines of the 1960s retraced the paths other Marines had journeyed from 1915 through 1933 in Cuba, Haiti, Nicaragua, and the Dominican Republic. The experiences as reflected in the *Small Wars Manual* may be summed up in the following two quotations from the manual:

The motive in small wars is not material destruction. It is usually a project dealing with the social, economic, and political development of the people.⁶

* * * * *

The purpose should always be to restore normal government or give the people a better government than they had before, and to establish peace, order, and security on as permanent a basis as practicable.—In so doing, one should endeavor to make self-sufficient native agencies responsible for these matters.⁷

Experience gained and recorded in a manual written 25 years before can only be a reference for the new generation. A new chapter, not only of military action but of civic action, was begun on 8 March 1965 with the landing of the 9th Marine Expeditionary Brigade at





School house built with the help of the 7th Marines' civic action program at Chu Lai, March 1967. (USMC Photo #A369955).

Da Nang, Republic of Vietnam.* Limited initially to the local defense of the fast-growing air base at Da Nang, Marine civic action consisted primarily of spontaneous acts of commiseration and charity by individual Marines toward a small population. As the military situation improved, more use of organic resources was made. Civic action projects were oriented toward medical assistance, repair of existing roads and facilities, and minor new construction projects. The doctors soon discovered that many of the superficial ills of the people, such as rashes and sores, could be cured by simply keeping the infested areas clean. The



Staff Sergeant Thad Jones and Lance Corporal Robert Bragan of 4th Marines Civic Affairs Team give showers to Vietnamese Children during MEDCAP visit, 14 June 1967. (USMC Photo #A188734).

result was a loud plea for soap and other materials. By June 1965 the Commander in Chief, Pacific, Admiral Ulysses S. Grant Sharp, notified the Commanding General of III Marine Amphibious Force (III MAF), then Major General Lewis W. Walt, that supplies of all kinds would be available for use by the Marine Corps civic action groups through Project HANDCLASP. Project HANDCLASP, an official Navy program since 1962, was part of the Navy's people-to-people effort and overseas community relations program. Individuals and organizations within the United States donated material to the naval service and shipped it to warehouses at San Diego for further delivery by the Navy overseas on a space available basis. Within six months, 63,000 pounds of miscellaneous basic commodities were shipped to III MAF.⁸

As the civic action program matured, other needs and problem areas became evident. Requests for commodity support often could not be filled due to the lack of certain needed items and the uncertain arrival time of materials being shipped on a space available basis. This situation often resulted in embarrassing delays, and tended to erode the overall effect of the program. As though in answer to this problem, the Marine Corps Reserve concluded an agreement with CARE (Cooperative for American Relief Everywhere) whereby the USMCR would solicit money for support of the III MAF civic action program and CARE would act as the custodian of the fund. On the 13th of September 1965, this program was officially launched by the CMC. The program immediately proved successful, and III MAF was provided with one of the most flexible and useful civic action tools in its inventory.⁹ Of the many programs implemented by the USMCR/CARE project, two were most successful:

1. MEDCAP (Medical Civic Action Program)—In addition to giving medical help to the people in the local hamlets, MEDCAP trained GVN (Government of Vietnam) medical personnel and trained rural health workers. On-the-job training was given

*Three years earlier, April 1962, Marine military action was begun when a squadron of UH-34 helicopters landed at Soc Trang in the Delta. The squadron was Marine Medium Helicopter Squadron 362 (HMM-362) commanded by Lieutenant Colonel Archie J. Clapp. LtGen Keith B. McCutcheon, "Marine Aviation in Vietnam 1962-1970," *U.S. Naval Institute Proceedings*, v. 97, no. 819 (May 1971), p. 124.

to volunteers who offered to assist the MEDCAP teams, and in this way the local people were encouraged to contribute to the welfare of their own community.

2. School Building Program—In the spring of 1966, III MAF developed an effective classroom building construction program. Local hamlets were required to provide a site for the classroom, a teacher, and people to provide self-help labor for construction. III MAF agreed to provide in return, construction materials, technical advice, and equipment for clearing and grading the site. The USMCR/CARE Civic Action Fund proved to be invaluable in support of this program by providing a ready means for acquiring special hardware items not available through other sources.¹⁰

The presence of a number of U.S. civilian agencies in I Corps was known to the Marines since March 1965, though interrelationships had not been developed at that time.* The mutual need for coordination and cooperation immediately became apparent when the civic action program began. The civilian agencies possessed commodities but lacked the manpower to provide an effective system of distribution and control. The Marines were in daily contact with the civil populace located in and adjacent to the areas which they controlled militarily, but they needed commodities for use in the civic action program. The largest civilian organization in I Corps in regard to available commodities were the U.S. Agency for International Development (USAID), the Cooperative for American Relief Everywhere (CARE), and Catholic Relief Services. USAID representation in I Corps consisted of a regional office located in Da Nang, and a provincial office located in the capital city of each of the five provinces. CARE and CRS each had one representative for the entire corps area, both located in Da Nang.¹¹

The need for a means to insure continuous coordination and cooperation among the various agencies and organizations which shared an interest in winning the willing support of the people for the GVN resulted in formation of the I Corps Joint Coordinating Council (JCC) in August 1965. This council's membership included senior representatives of all major U.S. and GVN organizations and agencies, both military and civilian, located in I

*For military purposes, the Republic of Vietnam was divided into four corps tactical zones. In July 1970, Corps Tactical Zones were redesignated Military Regions, i.e., Military Region I (MR-I). At this point, I Corps will be used. I Corps comprised the five northernmost provinces of South Vietnam, Quang Tri, Thua Thien, Quang Nam, Quang Tin, and Quang Ngai.



General Lewis W. Walt, Commanding General, III Marine Amphibious Force, 1965-67. (USMC Photo #A416364).

Corps. The council, as such, had no directive authority or funds but through its senior membership had access to the sum total of the available authority and resources. The mission of this council was to monitor progress of the GVN Revolutionary Development (RD) Program* and to provide a ready forum for frequent discussion of attendant problems.¹² To underscore the importance of the I Corps JCC, General Walt designated Brigadier Generals Keith B. McCutcheon and Melvin D. Henderson to sit on the council to ensure the best possible support in assisting the government of Vietnam in the execution of its rural construction program.¹³

By the end of the summer of 1965, the III MAF had developed the framework of the organization which was to conduct its civic action program. A fifth general staff section was created which was called the G-5 Section. This section was assigned the staff responsibility for the conduct of civil affairs which

*The Revolutionary Development Program was the Vietnamese effort in pacification. With RD cadres in the hamlets, it was hoped that the RD program would foster wide public construction and social development at all levels.



Vietnamese listen to a speaker during a county fair being held by Company "G", 2d Battalion, 7th Marines at Phu Le Village near Chu Lai. (USMC Photo #A189710).

included civic action. The 3d Marine Division followed suit and established a G-5 Section. Regiments and battalions appointed civil affairs officers, either as a primary or an additional duty assignment. This organization facilitated the development of effective techniques for distribution of civic action commodities, for dissemination of civic action information, and for collection of data for use in evaluating the effectiveness of the program.

To bring the generalities of civic action down to a statistical example for the reader, the following material contributions made by Marines in the short period from March to December 1965 is shown below:

Persons given medical treatment	199,631
Pounds of food distributed	142,756
Pounds of soap distributed	46,535 ¹⁴

In Support Of

In endeavoring to achieve the peaceful ends of civic action, new types of military activity in support of the Revolutionary Development Program and the Civic Action Program evolved. Three such actions, COUNTY FAIR, GOLDEN FLEECE, and the establishment of the Combined Action Force, were among the more successful Marine efforts within country.

(1) COUNTY FAIR Operations.—Initially started by the 9th Marines in August 1965 in the Da Nang area to find the local guerrillas, COUNTY FAIR Operations involved coordinated psychological warfare and combat power. These operations combined Marine Corps per-

sonnel and ARVN (Army, Republic of Vietnam) forces in an effort to destroy the Viet Cong influence in selected hamlets and restore government influence. Essentially, the operation consisted of a Marine unit moving into position early in the morning around a hamlet and establishing a cordon to prevent the escape of any Viet Cong. At first light, ARVN troops and political cadres of the GVN entered the area and moved all the civilians to a predesignated collection point where the people were fed, given medical aid, counted, identified, given propaganda lectures and drama presentations, and shown movies. While this segment of the operation was going on, ARVN troops thoroughly searched the hamlet for hidden tunnels, food, ammunition, and weapons. Militarily, it was simply a cordon-and-search operation and there was nothing new in that. General Lewis W. Walt stated that what was new about the COUNTY FAIR Operations was "such things as the explanation offered the people, the food and medical attention provided, shelter from the sun and/or the rain, and decent regard for the community as individuals and families . . . it worked well for us."¹⁵

Possibly as a result of the success of the Marine COUNTY FAIR, the Army in I Corps started a similar program a year later calling it HAMLET FESTIVAL. Regardless of what it was called, it proved to be highly successful.

(2) GOLDEN FLEECE Operations. In August 1965, a rather simple request from a village chief to the Commanding Officer of 1st Battalion, 9th Marines, Lieutenant Colonel Verle E. Ludwig, whose battalion controlled a sector of four villages and numerous hamlets in the Hoa Vang District of I Corps, produced one of the most successful and lasting operations. The opportunity came when some of the village chiefs wanted to know if the Marines would help them protect their rice crop from the Viet Cong tax. The chain of events was ideal. The peasants needed assistance and had requested it through their government leader. The Marine Corps got an opportunity to support a representative of the local government and to fulfill a basic need of a large number of people. Lieutenant Colonel Ludwig's efforts at coordination, and demonstrations of Marine Corps superiority over the Viet Cong, fused with the basic needs of a terrorized and partially starved population.¹⁶



5th Marines help the Vietnamese gather their rice crop in GOLDEN FLEECE Operations, October 1966. USMC Photo #A369634).

The challenge was met by the battalion commander by covering the area with guards and patrols and keeping mobile forces in reserve throughout the harvest season. He worked with the district chief to provide safe storage for the harvested grain and worked out a system of credit by which each family could draw their rice as they needed it, to eat or to sell.¹⁷ Patrols were sent into the nearby hills to locate and if possible return rice already confiscated and hidden by the Viet Cong.

The success of GOLDEN FLEECE in the Hoa Vang District resulted in the populace of I Corps requesting Marines to protect their crops at the two harvest times each year. The GVN responded to requests with local guard forces and communal transportation from the fields to safe storage. The Agency for International Development provided cement and

tin for the construction of dry buildings in safe areas.¹⁸ The simplicity and total value of GOLDEN FLEECE Operations became SOP (Standing Operating Procedure) throughout III MAF.

(3) Combined Action Force (CAF).—The CAF was one of the most successful and rewarding experiences Marines encountered during their tour in Vietnam. The primary purpose of the CAF was to “1) to enhance village and hamlet security by the conduct of integrated military operations with the Popular Force, and 2) to increase the ability of the villagers to sustain and defend themselves by participating in and encouraging projects contributing to the people’s well-being and their identification with the national government.”¹⁹ Starting with a contribution of four Marine

rifle squads in 1965, by March 1970, there were 2,000 Marines and Navy corpsmen, along with about 3,000 Popular Force (PF) soldiers involved in the Combined Action Force.

By way of background, between 1959 and 1961, the RVN government began to relocate the rural population into peasant-constructed rural towns called agrovilles in an effort to protect them against the growing insurgency threat. For many reasons the program did not work, but primarily because the rural population resented the forced relocation and the local defense forces were incapable of responding effectively to the Viet Cong hit-and-run tactics. The agrovilles were abandoned in 1961. From 1961 to 1963, the Strategic Hamlet theory was tried out by the Army. The elements were the same as the agrovilles, forced relocation with self-defense forces inadequately armed and poorly trained. The ARVN endeavored to strengthen the defense forces and give genuine security to the Strategic Hamlets but had other missions to perform.²⁰ The Strategic Hamlet concept was also abandoned.

In the spring of 1965, the GVN government opened a political cadre training center whose graduates were organized into Political Action Teams (PAT). Aside from the political activity, a 30-man PAT was assigned to the defense of a hamlet or village. The people were not relocated but allowed to stay in their own village. Again for a variety of reasons, this concept failed. There was no immediate and direct liaison with the ARVN and/or U.S. forces in the area. Their isolation from the other forces in the area, coupled with their light

armament and inadequate knowledge of the local situation, foredoomed the PAT forces to failure.²¹

In August 1965, the Marine Corps combined two elements, namely, not relocating the population and utilizing the local forces now called Popular Forces. They added to these elements another ingredient, the U.S. Marine. There was no question that if the people were insecure, all of the other efforts within the pacification framework would fail. In the Hue/Phu Bai area, the Marine Corps with the cooperation of several village chiefs formed a joint force to meet the problem of local security. Both the Marines and the Vietnamese knew the limitations of Popular Forces but wanted to place local security on Vietnamese shoulders. Several village chiefs agreed to allow four Popular Force platoons to work directly with four Marine rifle squads. The resultant force was called a Joint Action Company and was commanded by Lieutenant Paul R. Ek of Company I, 3d Battalion, 4th Marines.²²

The Marines in the Joint Action Company trained the Popular Forces in small unit tactics, marksmanship, and improved fire support and served as the nucleus for patrols and ambushes throughout the village area assigned to each platoon. The joint platoons also conducted vigorous civic action programs in support of the local governing officials. The program emphasized self-help by the peasants in the civic action projects while the joint platoons provided security. The integration of Marines into Popular Force platoons succeeded from the beginning.

Basic to the success of the Combined Action Companies (CACO), the subsequent name for the former Joint Action Companies, or CAP, Combined Action Platoons, was the fact that the PFs, being local residents, provided knowledge of the area, rapport with the people, and improved access to information about the enemy. The PFs had the motivation that was inherent in the defense of one's own home. Although the PF comprised the lowest paid and least trained element of the Vietnamese military, their value was inestimable.²³

By 1967, the Combined Action Program expanded throughout I Corps. It was necessary to appoint a CAP Director at the III MAF level, who operated under the general staff cognizance of the Assistant Chief of Staff, G-3, and who discharged administrative control



A Marine and Popular Forces of Combined Action Group 4 check the IDs of villagers where Viet Cong action was located. (USMC Photo #A191951).

over the program but without operational command. By October 1967, the number of CAPS necessitated an intermediate level of supervision, and so the Combined Action Group (CAG) was activated. In January 1970, the Combined Action Force (CAF) was formed and had control of all 114 CAPs dispersed throughout the populated coastal lowlands of all five provinces in I Corps. Although the basic element of the CAF was the CAP, controlling and coordinating headquarters existed at the district, province, and corps levels. The 114 CAPs were organized into 19 CACOs which in turn were organized into four CAGs. Generally speaking CAG headquarters corresponded with and were located close to province headquarters. The CACO commander and CAG commander were counterparts to the district and province chiefs, respectively. Corps level coordination was effected through close liaison between the Commanding Officer, CAF and the Deputy Commander for I Corps.²⁴

With the stepped-up redeployment of Marines from Vietnam in 1970, the CAF was deactivated on 21 September 1970 leaving only the 2d Combined Action Group functioning under III MAF. The last Commanding Officer of the CAF, Colonel Ralph F. Estey, summed up the CAF by stating that "it had played a unique and unparalleled role in combat operations supporting the pacification effort in the Republic of Vietnam. The neutralization of 7,785 enemy demonstrated the aggressive, tenacious, and courageous character of this force which never numbered more than 2,100 Marines and Navy personnel and 3,000 Popular Forces at any one time."²⁵

Colonel Estey pointed out the positive statistics of the contribution of the CAF since its beginning in 1965, that the number of Medical Civic Action Program visits throughout I Corps approached nearly two million and that by 1970 the population protected by CAPs numbered over 425,000.

That the Combined Action Program worked, and worked well, in Vietnam did not preclude the fact that the program could have been improved. Definitive studies by the Marine Corps and private research groups will sift out the flaws and analyze what was done. Quoting from one research group writing in December 1969:

The Combined Action Program is doing an excellent job in Vietnam, far more excellent, in fact, than we were led to expect by what reports are

available in the United States. In the Combined Action concept, the Marine Corps has developed a tool with capabilities that are unique among the services and with a potential far wider than its present application. However, it is not in line with Marine traditions to rest on one's laurels—and it is especially important in today's rapidly changing world to reassess and perfect our instruments continually in order to meet the demands both of today and the future with maximum effectiveness.²⁶

The Helicopter and Refinement of Tactical Mobility

In mid-1971, revisions being prepared for the series of Fleet Marine Force Manuals (FMFM) published by MCDEC reflected the importance of tactical mobility when applying combat power to the immediate battlefield. What will be stressed in the revisions will be a reminder to the commander that he will have greater means of obtaining higher mobility as additional equipment is added to the Marine Corps inventory. The ability to move infantry and maneuver direct support artillery units rapidly will provide the commander greater flexibility and depth on the battlefield. Vietnam experience is replete with examples of successful use of helicopter-borne movements. General Keith B. McCutcheon



Lieutenant General Keith B. McCutcheon, aviation pioneer and Commanding General, III Marine Amphibious Force, 1970. (USMC Photo #A700390).



A Marine ground crewman guides a UH-34D helicopter to a landing in a small jungle clearing in Vietnam. (USMC Photo #A329571).

stated: "Vietnam was certainly a helicopter war for U.S. forces. It is difficult to envisage how we would have fought there without them."²⁷

The Marine Corps' faith and vision in utilizing the helicopter as a means to achieve high mobility in warfare was evidenced as early as 1946 and borne out in MCS publication of *Phib-31, Amphibious Operations—Employment of Helicopters—Tentative* in 1948. (See Chapter IV of this book). Subsequent years of study and development by the Marine Corps pioneered the use of helicopters in ground warfare in Korea. The Marine Corps pursued the development of aircraft that would provide the helicopter lift to execute the ship-to-shore movement in an amphibious operation. By the time of Vietnam involvement in 1962, the Marine Corps had squadrons equipped with UH-34s and CH-37s. In any other time, both

models would have been considered obsolescent but imperative need deemed otherwise. In addition to having troop carrying helicopters in 1962, the 1st MAW had, by 1965, the UH-1E. While the Marine Corps experimented with armed helicopters as early as 1950, it did not pursue an active program inasmuch as the greatest need was for a helicopter to carry men and material. General McCutcheon recalls that the Marine Corps:

... sought to procure a light helicopter which could perform a myriad of tasks, including the role of gunship. This program was a long time in materializing, but it finally resulted in the UH-1E . . . One gunship version of the Marine UH-1E was armed with a nose turret which could be elevated, depressed and swung left and right. In addition, weight permitting, it could mount left and right fixed, forward-firing machine guns, or 2.75-inch rocket pods. A .30 caliber machine gun could also be installed in each of the two side doors.

The helo gunship proved to be indispensable. It was more immediately available than jets, more maneuverable, and it could work close-in with transport helicopters. . . . The AH-1G Cobra was not available for Marine use until 1969. The gunship was accepted with enthusiasm by the pilots, performed well in a fire suppression role and was maintained at a rather high rate of availability.²⁸

Happy times for the 1st MAF came when the transition from UH-34s to CH-46s began in March 1966. It was not until 1969, however, that all UH-34s were withdrawn. CH-37s did yeomen service in Vietnam from 1965 to the arrival of the CH-53 in January 1967.



Combat helicopter (CH-46) used by Marines in Vietnam. (USMC Photo #A140869).

High Mobility and the Fire Support Base

At the end of the first year in Vietnam, 1965, Marine transport helicopters were lifting an average of 40,000 passengers and over 2,000 tons of cargo a month while operating from their main bases at Ky Ha and Marble Mountain in I Corps. Five years later, Marine helicopters were lifting more than 70,000 passengers and 5,000 tons of cargo in a month. Part of this increase was attributed to the increased use of the CH-53 in troop lifts.²⁹ Another reason for the increase was the extensive use of Fire Support Bases (FSB). A simple definition of a FSB is a "rapidly constructed artillery position defended by a minimum of infantry. The infantry and tactical elements operate within the protective fan of the artillery FSB. The FSB themselves offer overlapping artillery support to each other and protection for several landing zones."³⁰ Construction of the fire support base was a complex job that included everything from mat-



Another combat helicopter (CH-53A). (USMC Photo #A412902).

ting for the landing zone to helilifted rubber-tired tractors. The concept had expanded during the war to all parts of South Vietnam, depriving the enemy of staging areas and infiltration routes. It allowed the infantry to move throughout the I Corps area while retaining the protective fires of friendly artillery.

Perhaps a forerunner of the FSB technique, as developed by 1968 with its extensive use of helicopters, was a major operation that occurred during Operation HARVEST MOON in December 1965. The UH-34s of MAG-36 and MAG-16 flew over 9,230 sorties and lifted 12,177 passengers and 638 tons of cargo during the 12-day operation. A helicopter staging area was established at a logistic support area (LSA) located half-way between Chu Lai and Da Nang on Route 1. After the initial insertion of three Marine battalions into the area of operations on 11 and 12 December, the helicopters made 60 other lifts of platoon-sized and even larger forces. Brigadier General Jonas Platt, the task force commander of the operation, states that for the first time in combat, 105mm howitzers from Chu Lai and Da Nang were helilifted into the battle area. General Platt also noted that 4.2-inch mortars were helilifted in the area of operations and utilized in a leap-frog manner.³¹

By mid-1968, all III MAF forces went from a static defense to a mobile offense posture. Major General Raymond Davis' 3d Marine Division fanned out in wide arcs penetrating and establishing a presence in areas the enemy had once considered havens. Throughout the remaining months of 1968, 3d Division Marines ranged the length and breadth of western



Fire Support Base of the 3d Marine Division near the Rock Pile in January 1969. (USMC Photo #A192512).

Quang Tri Province in I Corps, employing heliborne infantry and mobile fire support bases to keep the enemy constantly off stride. By the end of the year the enemy, by and large, pulled back his major units, unwilling and to a large extent unable to risk further destruction at the hands of this maneuver and firepower. Within a year, the 3d Marine Division had pursued its checkerboard concept to the extent of carving out more than 140 FSBs from the jungled terrain in northern I Corps. If there can be a classic example of the mobile concept operation, it would have to be Operation DEWEY CANYON, conducted in and around the Da Krong Valley from 22 January to 18 March 1969. DEWEY CANYON was a multi-battalion operation involving the 9th Marines and two battalions of the Vietnamese 1st Army Division.

An excellent account, including the fine work accomplished by the 1st MAW during DEWEY CANYON, is extracted from an article on the history of Marine aviation in Vietnam by General McCutcheon.*

On 21 January 1969, a team was formed of representatives of the 1st MAW and 3d Marine Division. Infantry, engineer, helicopter, and observation aircraft specialists were included. The team was responsible to the overall ground commander for landing zone and fire support base selection and preparation and coordination of the helicopter assault. Early on D-Day the initial landing zones (LZs) were

*Another fine account of Operation DEWEY CANYON, written by a lieutenant and platoon leader is First Lieutenant Gordon M. Davis, "Dewey Canyon—All Weather Classic," *Marine Corps Gazette*, v. 53, no. 7 (July 1969), p. 33.

prepared by fixed-wing air strikes (made suitable for helicopter landing by bombing and strafing to reduce the threat of opposition to a minimum) and elements of the 2d Battalion, 9th Marines, landed at 0800. In the rapid build-up that followed, CH-46s, under the control of the division direct air support center and under the protective umbrella of gunships and observation aircraft, brought 1,544 Marines and 46 tons of cargo into two LZs. By the evening of 24 January, a battery of 105mm howitzers from the 2d Battalion, 12th Marines and the command post of the 9th Marines were in place on one of these landing zones, which became known as Razor. The following day, three companies of the 3d Battalion were helilifted onto a ridgeline further forward, known as Co Ka Va. It would soon be developed into FSB Cunningham, named for the first Marine aviator. In a few more days, elements of the 2d Battalion from FSB Riley pushed down the ridgeline to establish another FSB (Dallas) to guard the western approach to the area from Laos. To the east, the two Vietnamese battalions were lifted into two other bases. They would secure the left flank and cut-off the enemy escape route to the east.

About the 1st of February, the "crachin" season really began to make itself felt. This is a period when low clouds and drizzle cover the mountain tops in northern I Corps and obscure visibility in the valleys. On 4 February, a company of the 3d Battalion moved into and occupied what was to become the last FSB for the coming infantry advance. Erskine was to be its name. Marine helicopters continually worked out of the Combat Support Base Vandegrift carrying essential supplies of ammunition, rations, and water to the various bases. On the return trips they carried wounded back to aid stations. Often the weather precluded access to the area except by flying on instruments. Under such conditions, over 40 pallets of critically needed supplies were dropped by KC-130 transports and CH-46 helicopters, under control of the TPQ-10 at Vandegrift. When artillery was in place on both Cunningham and Erskine, the 9th Marines began moving on foot from their bases into the Da Krong Valley with battalions on line. Their objective was Tiger Mountain and the ridgeline that ran west from it. As they advanced, landing zones were carved out of the jungle with 2,000 pound bombs or, as a minimum, sufficient space was created so that a medevac could be performed by heli-

copter hoist, or an external load could be dropped to the troops on the ground.

The 22d of February saw the lead element of the 3d Battalion gain the crest of Tiger Mountain. In a few days it became FSB Turnage.

The 24th found the 1st Battalion in possession of the enemy's headquarters at Tam Boi. The 2d Battalion took control of the ridgeline overlooking Route 922, where it crosses from Vietnam into Laos. The 27th marked the first time a TPQ-10 had ever been emplaced and operated from a FSB. One was placed on Cunningham and remained there for 17 days, controlling 72 air strikes, 10 A-6 beacon drops, and 3 emergency paradrops. The 18th of March marked the final day of operation of DEWEY CANYON. On this day virtually the entire resources of the 1st MAF were committed. Over 350 tons of cargo and 1,400 Marines were helilifted out of Turnage and Tam Boi without a casualty. These were the last two bases to be vacated. Gunships and jets flew close cover and close air support. Perhaps the most notable accomplishment of the operation was that only one helicopter was lost in spite of the adverse weather and terrain and the efforts of a stubborn, well-trained, and professional enemy to counter the operation. Lieutenant General Richard G. Stilwell, U.S. Army, commander of all U.S. ground forces in the northern two provinces of I Corps under the Commanding General, III MAF, summed it up in a few words when he said, "Dewey Canyon deserves some space in American military history by sole reason of audacity, guts, and team play. I cannot applaud too highly the airmen of the 1st MAF in a variety of roles."³²

Research, Development, and Studies in the 1960s

Research and development has been acknowledged as being a major force in our nation's impressive economic growth since World War II. The Marine Corps' portion of R&D comes out of the Navy's Research, Development, Test & Evaluation Objectives and Budget. The Marine Corps' R&D figure ranges from \$35 to \$40 million dollars per year. The figure is misleading, however, because the value of R&D done by the other services and of interest to the Marine Corps encompasses expenditures approximating \$600 million.³³ The significant contribution of other services to Marine Corps

R&D is almost entirely in the execution phase of hardware development, including test and evaluation. They make very little contribution to Marine Corps concepts, plans, doctrine, and tactics. The Marine Corps has to do nearly alone whatever there is to be done in structural and doctrinal development and in the determination of its materiel requirements. This situation is not without its pluses, however, since development of, refinements to, and new tactical deployments of the Marine Corps Air-Ground Team make it unique in benefits and capability and its concept demands undivided attention.

Studies performed during the 1950s indicated that the Corps needed operations research/analysis capabilities. An operations research or operations analysis capability was first introduced into the Marine Corps in March 1957 with the appointment of a civilian analyst (civil service) to HQMC. Within a year this capability was augmented with the addition of a CNO Operations Evaluation Group (OEG) representative to the Headquarters. This provided the Headquarters with a two-man operations analysis effort for the next four years—a minimal operations analysis capability primarily directed toward improving the efficiency of man-machine systems especially in tactical problems or field exercises. One of the team's first efforts was directed to evaluations of the vertical envelopment assault capabilities as exemplified by LANTPHIBEX-58 and the BRIGADELEX series of 1959-1960. In 1958 the Marine Corps commenced a program to train a number of officers in operations analysis at the U.S. Naval Postgraduate School, Monterey, California. In 1962 the OEG billet at HQMC was moved to MCLFD at Quantico and with two other analysts an operations analysis unit was formed as a sub-element of the OEG.

To implement future goals, a Landing Force War Game Group was established at Quantico in 1961 in order to "develop objective methodology for the war gaming of amphibious operations." The group in conducting war games "acts" out the landing force aspects of amphibious operations. It simulates a military operation using rules, data, and procedures designed to depict an actual or assumed real life situation.

In June 1964, DC/S (R&D) prepared a staff study entitled "HQMC Capability to Support Programming, Planning, Budgeting and Appraising." This study concluded that HQMC

must develop a cost-effectiveness study capability which would assist the Headquarters in participating more effectively in the Department of Defense Programming System and in complying with Secretary of Navy Directives. It recommended the establishment of a Studies Office and a Headquarters Study Group under the direction of DC/S (R&D). The study was approved and a Studies Group, Marine Corps Operations Analysis Group (MCOAG) was formed in the newly designated DC/S (Research, Development, and Studies).³⁴ The DC/S (RD&S) acting for the CMC provides research, development, test, and evaluation (RDT&E) requirements within the Marine Corps.

RDT&E is characterized by progression from the general to the specific or from concept to reality. As the initial step, a long-range concept is prepared which portrays the world as it is expected to appear 20 years in the future. Based upon this long-range projection, the Marine Corps Long-Range Plan (MLRP) is created to describe the operational, organizational, and material concepts which the Marine Corps needs to achieve in order to carry out the roles and missions which are projected for it in this long-range future. The Marine Corps Mid-Range Objectives Plan (MMROP) is created against the background of the MLRP. It translates the long-range plan into more definitive goals which must be accomplished 10 years in the future to provide for an orderly progression from the present towards the long-range concept of Marine Corps combat forces. Both of these documents, the MLRP and the MMROP, serve as guides for the identification and establishment of RDT&E objectives, for the determination of the RDT&E Program as well as the Studies Program, and for the execution of implementing actions to achieve future goals.³⁵ Both plans support the JCS' Joint Strategic Objectives Plan (JSOP) which in turn supports U.S. national objectives.

Within the R&D process of the Marine Corps, there are two unique features that complement the duties of DC/S (RD&S). While he works on a close and continuing basis with all general staff officers, he has a special relationship with the Deputy Chief of Staff (Air) and Assistant Chief of Staff, G-4. The Deputy Chief of Staff (Air) in Headquarters Marine Corps has, in addition to his responsibilities to the CMC, a responsibility to the Deputy Chief of Naval Operations (Air). He is concurrently DC/S (Air) in HQMC and Assistant Deputy

Chief of Naval operations (Air) for Marine Aviation in the office of the CNO. Air developments in the Department of the Navy are coordinated Navy/Marine efforts whenever it is possible. The Secretary of Navy requires the CMC to "provide Marine Corps RDT&E requirements in aircraft and related equipment to CNO."³⁶ The Marine Corps monitors aviation research and development but it is performed and funded by the Navy. The AC/S, G-4 is responsible for the materiel planning and requirement effort. In addition, he manages the execution of the majority of the ground R&D efforts. It must be remembered that DC/S (RD&S) coordinates the R&D effort but does not task the execution of development projects. The CMC has in effect selected the AC/S, G-4 to execute ground materiel development.

On 1 January 1968, MCS was redesignated the Marine Corps Development and Education Command (MCDEC). The Marine Corps Landing Force Development Center subsequently became the Development Center, Marine Corps Development and Education Command. The Commanding General, MCDEC is designated by the CMC as his field representative for all research and development activities. He has a total of 22 permanently assigned liaison officers located at major armed forces development centers throughout the United States to aid him in keeping abreast of developments and tests at their respective locations. Close liaison is maintained with the Canadian Army and the British Royal Marines.³⁷

Throughout testing and development, information concerning new equipment and ideas is given by the Development Center to students of the MCDEC's various schools and the students provide their experience and knowledge in study efforts for the centers. In speaking of all efforts supporting the R&D program, whether it be from analysis groups, MCDEC students or liaison officers, Major General Louis Metzger, while DC/S (RD&S) in 1968, stated:

The aim or objective of our R&D effort is to design and prepare the Marine Corps of the future to carry out its assigned roles and missions as the amphibious force in readiness of the United States and, additionally, to meet the broad mandate of "such other functions as the President may direct."

We must be able to carry out assigned functions whenever and wherever we are called upon to do so, and must be capable of a flexible and rapid response to the wide spectrum of possible operations. In brief, we must violate the old drill maxim not

to "anticipate the command" in order to retain our position of professional excellence.³⁸

The Decade To Come

Officially, the policy and objectives of the Marine Corps during the next 10 years is contained within the Marine Corps Mid-Range Objectives Plan (MMROP). What will be discussed here is the reaffirmation of one doctrine, the Marine-Air-Ground Task Force (MAGTF) and the discussion of a possible variant emanating out of the Vertical/Short Takeoff and Landing concept.

The MAGTF is simply a task organization tailored to accomplish a specific mission or missions. Composition of the MAGTF many vary considerably, but will normally include a command element, ground combat element, an aviation combat element, and a combat service support element. It is in general a close integration of air and ground power formed for combat operations, training exercises, and deployments.

The MAGTF doctrine is over 25 years old. It is noted in this chapter because of its function in the decade of the 1960s and its implementation in Vietnam. The concept stems from a long period of development based upon and influenced by the advent of great tactical mobility (helicopters) and fire power (atomic weapons). It is after all the old "force-in-readiness" concept of ground combat units supported by air. Since the introduction of air power into 20th century warfare, the Marine Corps, from the beginning, had considered aviation resources as complementing the ground forces for the highly flexible team that would ensue. There was never a question that "aerial support" was an integral part of the amphibious operation as evidenced by it being a major chapter in the 1935 "Tentative Landing Operations Manual" (see Chapter III).

In the post-World War II period, the new ingredients of helicopters and atomic weapons introduced the dispersion theory as one of the answers to atomic warfare and consequently control and composition of forces had to be reconsidered. Examining all of the factors, the Commandant in 1955 reaffirmed, in Landing Force Bulletin No. 17, the simple maxim that, with or without nuclear weapons, the most effective employment of the FMF is in the form of an integral military organization emphasizing both air and ground elements re-



General Leonard F. Chapman, Jr., 24th Commandant of the Marine Corps, 1 January 1968 to 31 December 1971. (USMC Photo #A415547).

sponsive to a single Marine commander. This organization can be structured to meet anything from a show-of-force situation to a major conflict. What must be remembered is that the MAGTF is a task organization tailored to accomplish a specific mission. The current Marine Corps Order 3120.3A³⁹ points out that the composition of MAGTF may vary considerably but will normally include the following major components:

- A Command Element
- A Ground Combat Element
- An Aviation Combat Element
- A Combat Service Support Element, including Navy Support Elements.

At the present time, the FMF can task organize three types of MAGTF:

- Marine Amphibious Unit (MAU)
- Marine Amphibious Brigade (MAB)
- Marine Amphibious Force (MAF)

Before discussing the MAU, MAB, and MAF, let us look at the major components of a MAGTF. The Command Element is simply that commander appointed normally from sources outside the major elements of the task force. He will have a separate air-ground

headquarters and the communications and service facilities required for its support.

The Ground Combat Element is constructed around a combat infantry unit with appropriate combat support and combat service support units. So too with the Aviation Combat Element. This element includes those aviation commands, including air control agencies, combat, combat support, and combat service support units, required by the situation. Normally both fixed-wing attack and helicopter aviation facilities are included in the aviation combat element of a MAGTF. The other component is the Combat Service Support Element which of course supports both the ground combat element and the aviation combat element.

In the evaluation of the MAGTF, it was envisioned, in 1953, that the MAGTF would be composed only of elements combining a division and wing such as the 2d MAGTF, composed of Headquarters, 2d MAGTF, 2d Marine Division, 2d Marine Aircraft Wing, and Force Troops then commanded by Lieutenant General Oliver P. Smith who was Commanding General, FMFLant. As a result the LANTAGLEX in April 1954 was one of the first division/wing level amphibious exercises of the 2d MAGTF. In subsequent years, however, LANTRAEXES were held which considered that a MAGTF was only comprised of an infantry regiment and a MAG.

Influential in changing the makeup of the MAGTF were the changing concepts of future amphibious operations as contained in the Advanced Research Group Reports and Landing Force Bulletin No. 17. Summarized below are some of the high-points of the evolutionary process of the MAGTF of today:

1954—Advanced Research Group 1953-54—Considered landing force aspects of future (within next 10 years). In essence, the report recommended the "all" helicopter concept based only on fighting a nuclear war.

1955—Advanced Research Group 1954-55—With a revised concept and an "all helicopter assault" concept in mind, this group tempered its recommendation with the real possibility of fighting a non-nuclear war.

1955—Landing Force Bulletin No. 17—Promulgated a concept which envisaged the employment, with or without nuclear support, of integrated Marine landing forces of ground and supporting air components, organized, trained, and equipped to exploit the speed and flexibility of the helicopter, for the projection of seapower deep ashore at any point on the world littoral without the necessity of direct assault on the intervening shoreline.



Marine air-ground team concept acted out at Marine Corps Air School, Kaneohe Bay, Oahu, T.H. by the 1st Provisional Marine Air-Ground Task Force. (USMC Photo #A290042).

1958—LANTPHIBEX 58—The first major test of the vertical envelopment concept was successfully conducted at Onslow Beach, N.C., with the entire 2d Marine Division involved in an assault landing. The vertical assault was conducted from three carriers (USS *Tarawa*, CVS-40; the USS *Valley Forge*, CVS-45; and the USS *Forrestal*, CVA-59) by helicopters of MAG-26 commanded by Colonel Keith B. McCutcheon.

1959-60—BRIGADELEXES—The vertical envelopment concept was perfected through a series of brigade vertical envelopment exercises conducted by elements of the 2d Marine Division and MAG-26 at Vieques, P.R., and Onslow Beach using the USS *Boxer* as the new LPH-4. The USS *Princeton* (LPH-5) was similarly employed in West Coast exercises.

1960—CMC promulgated a letter, dated 31 May 1960, describing air-ground task force command relationships and structures.

1962—CMC promulgated MCO 3340.3, dated 20 April 1962, subject—Employment of Marine Air-

Ground Task Forces in Future Amphibious Operations. This is a broad conceptual statement on employment of a MAGTF.

1970—MCO 3120.3A, dated 18 August 1970, subject—The Organization of MAGTF. This order is the current doctrinal guide on the structure of the MAGTF.

The structure of the types of MAGTF as contained in the current order is outlined below:

Marine Amphibious Unit (MAU)—The MAU, normally commanded by a colonel is employed to perform combat operations in a relatively limited scope. The ground element is normally a battalion landing team (BLT) and the aviation element is normally a composite helicopter squadron. However, the aviation unit may consist of an attack squadron, a helicopter squadron, and elements of an observation squadron. The combat service support element of the MAU is formed primarily from division, wing, and force troops including the Force

Service Regiment (FSR). Detachments from Navy combat service support resources may be added.

Marine Amphibious Brigade (MAB)—The MAB, normally commanded by a brigadier general, is capable of conducting air-ground amphibious assault operations in low- and mid-conflict environments. The ground element of the MAB is normally equivalent to a regimental combat team (RCT). The air element is usually a MAG with varied aviation capabilities. The combat service support element includes significant resources from force troops, including the FSR, division and wing combat service support units, and the Navy support units. The present Marine Corps Division/Wing Team has the capability to deploy two MABS for separate missions should unusual circumstances require such flexibility.

Marine Amphibious Force (MAF)—Formerly designated Marine Expeditionary Force. This designation was changed in the early period of the Vietnam war in deference to Vietnamese uneasiness to the term "expeditionary." The MAF, largest of the Marine air-ground task forces, may be formed with many variations in task organization structure. The MAF is commanded by either a major general or a lieutenant general, depending on its size and mission. It is capable of conducting a wide range of amphibious assault operations and sustained operations ashore. It can be tailored for any intensity of combat and to any geographic environment. The ground element of a MAF is usually a reinforced division. The aviation combat element is usually an aircraft wing organized to conduct all types of tactical air operations. The combat service support element of a MAF can be a single entity or can be composed of a logistic support element and an engineer support element. The MAF may include an organic MAB or MAU as a separate element in order to conduct air-ground operations sufficiently in space or time from other MAF elements.

The MAGTF worked well in the past and particularly in the immediate past, Vietnam. The doctrinal experience of the MAGTF, an experience not shared by any of the Armed Forces, demonstrates great flexibility in task organization and satisfies generally any operation requirement.

Vertical/Short Take-Off and Landing

V/STOL has, in one form or another, interested the Marine Corps for over 25 years. The Marine Corps' introduction and development of the helicopter into military operations after World War II only pointed out the need for increasing the possibilities to extend V/STOL capabilities into high performance, tactical fixed-wing aircraft. The Marine Corps

believes that it has the answer to the need in the British-built Hawker-Siddeley Aviation Corporation jet aircraft called the Harrier. The Harrier is a single seat, single fan jet aircraft powered by a Rolls Royce Bristol Pegasus 103 engine of 21,500 pounds thrust. By utilizing four rotatable exhaust nozzles, enough thrust is available to have the jet operate like a helicopter.



Vertical/Short Take-off and Landing Aircraft (Hawker-Siddeley AV-8A "Harrier") used by Marines. (Photo courtesy of Naval Air Test Center, Naval Air Station, Patuxent River, Md.)

The United Kingdom had been experimenting with a V/STOL aircraft called the P-1127. With substantial improvements to the P-1127, then called the Kestrel, a successful flight occurred 21 October 1960. By 1968, the P-1127 Kestrel, now Harrier, was in the process of being adopted by the Royal Air Force. At the same time, in mid-1968, Lieutenant Colonel John Metzko, then Head, RD&S Section, Air Weapons Systems Branch of Headquarters Marine Corps, requested the Marine Corps to take a hard look at the new improved Harrier. "Recognizing the value of such an aircraft for the Marine Corps, Major General Keith B. McCutcheon, Deputy Chief of Staff (Air) directed efforts to obtain approval for two pilots to participate in a short flight evaluation of the Harrier."⁴⁰

Colonel Thomas H. Miller and Lieutenant Colonel Clarence M. Baker departed for the United Kingdom in September 1968 and completed flight evaluation tests by October. After

20 sorties which involved all flight modes of the Harrier's operational capabilities, Colonel Miller stated:

In addition to the unique take-off and landing capabilities afforded by the vectored thrust concept used by the Harrier, there are several inflight maneuvering advantages. For instance, during glide bombing runs the nozzles can be moved to the reverse thrust position to provide unprecedented speed control in the dive. Another advantage is the ability to rapidly reduce speed and increase turn rate during air-to-air combat maneuvering.⁴¹

Colonel Miller pointed out that an unprecedented potential in the advantages of the Harrier could lead to a complete overhaul in aircraft tactics and procedures.

In 1969, the Defense Department approved the Marine Corps request to purchase an initial increment of 12 Harriers during Fiscal Year 1970 with another 18 authorized during Fiscal Year 1971.⁴² The Marine Corps designated the Harrier as AV-8A, and after testing and modify-

ing it to fire Sidewinder missiles, established the first Harrier squadron, VMA-513, at Marine Corps Air Station, Beaufort, South Carolina. By mid-1971, VMA-513 had the first five AV-8A Harriers and the potential to add whole chapters to Marine tactical air doctrine.

In 1965, the then Commandant of the Marine Corps, General Wallace M. Greene, Jr., in discussing the Long Range Marine Corps Concept (addressing the period 1975-1985 time period), envisioned the value of Marine Air-Ground teams and V/STOL as follows:

The primary amphibious assault capability of the landing force will consist of fully V/STOL-mobile Marine air-ground teams, launched and supported from mission designed amphibious shipping, under all conditions of weather and visibility. This will be complemented by a surface assault capability utilizing high speed surface craft, either water or air cushion borne able to project troops, equipment, and supplies onto the beach beyond the high water line.⁴³

APPENDIX A

NOTES

Chapter I

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³³ Office of Naval Research, *M.C. Research & Development*, p. 31.

³⁴ *Ibid.*

³⁵ Marine Corps Order 3900.3B, dated 26 August 1969, Subject: Marine Corps Research, Development, Test, and Evaluation.

³⁶ Office of Naval Research, *M.C. Research & Development*, p. 31.

³⁷ M.C. Development and Education Center pamphlet, 1971 (HD, HQMC).

³⁸ Chief of Staff memo, w/ enclosed book, to Distribution List, dated 15 July 1968, Subject: "Symposium Book, 1968 General Officers Symposium" (Secret) (Archives, HRS, HD, HQMC). Information used is unclassified.

³⁹ Marine Corps Order 3120.3A, dated 18 August 1970, Subject: "The Organization of Marine Air-Ground Task Forces."

⁴⁰ Col Thomas H. Miller, "Flying the Harrier," *Marine Corps Gazette*, v. 54, no. 5 (May 1969), p. 24.

⁴¹ *Ibid.*, p. 27.

⁴² "Congressional Action on FY 71 Major Weapons Programs," *Armed Forces Journal*, v. 108, no. 11 (February 1971), pp. 30-31.

⁴³ Gen Wallace M. Greene, Jr., "A Long Range Marine Corps Concept," dated 9 June 1965 (HD, HQMC).

APPENDIX B

Bibliography

A Note about Sources

For this writer, and as is generally the case, the primary source material for the book is the most valuable. The titles of record sources listed below are self-explanatory. There are, however, three particular sources worthy of special mention. Within the Naval History Division Operational Archives, there is a complete record of the correspondence of the General Board of the Navy. Record Groups 432, pertaining to the Marine Corps in general, and 408, pertaining to advanced bases, overlap by the nature of their contents. General Board correspondence was most important inasmuch as it was little used by previous Marine Corps writers and researchers. With only a cursory glance at these records, the reader will become aware of the Marine Corps' position in its relationship to the Department of the Navy during the first 45 years of this century. Another source is the Historical Amphibious File (HAF) at Breckinridge Library. Containing nearly 1,000 documents, the HAF encompasses material from original doctrinal reports to personal reports, observations, and letters. The HAF is

a must for any writer-researcher in the field of amphibious warfare. The third source most worthy of mention is contained in the "Monographs, Reports, Letters, and Memoranda" list. Some of the reports on landing exercises, particularly during the fleet exercises of the 1920s, are already contained in the HAF. However, miscellaneous reports and memoranda were found in the Records of the U.S. Marine Corps (Record Group 127) at the National Archives and the General Correspondence files of Marine Corps Schools (Accession No. 62A-6573).

The list of secondary sources of books and magazine articles is not exhaustive but rather selective for the range of this book. The value of secondary sources to the writer is that they give him an appreciation of other viewpoints and approaches in telling a story.

Suffice it to say, the critical comments by the reviewers of the draft manuscript were of supreme importance. Most of the reviewers had participated in nearly all of the period of Marine Corps history discussed. Their personal experiences in a specific exercise or development of doctrine of weapon cannot be underestimated. Their valuable comments bolster the dictum that there is no substitute for personal experience.

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- Colonel Roger Willock, USMCR (Ret.)
- Lieutenant General Louis E. Woods, USMC (Ret.)
- Lieutenant General Thomas A. Wornham, USMC (Ret.)

APPENDIX C

Glossary of Abbreviations

AC/S	Assistant Chief of Staff	FMC	Food Machinery Corporation
Adm	Admiral	FMF	Fleet Marine Force
AEF	American Expeditionary Force	FMFLant	Fleet Marine Force, Atlantic
AKA	Attack Cargo Ship	FMFPac	Fleet Marine Force, Pacific
ALO	Air Liaison Officer	FSCC	Fire Support Coordination Center
ALP	Air Liaison Party	FSR	Force Service Regiment
Amphib CPX	Amphibious Command Post Exercise	FTP	Fleet Training Publication
AO	Aerial Observer	FY	Fiscal Year
ARG	Advanced Research Group	G-3	G-3 Division (Assistant Chief of Staff, Operations and Training)
ARG/SLF	Amphibious Ready Group/Special Landing Force	G-4	G-4 Division (Assistant Chief of Staff, Logistics)
ARVN	Army, Republic of Vietnam	GO	General Order
ASRT	Air Support Radar Team	GVN	Government of Vietnam
AWC	Army War College	HAF	Historical Amphibious File
BASIC	Battlefield Area Surveillance Communication	Hdqtrs	Headquarters
BGen	Brigadier General	HistBr	Historical Branch
BLT	Battalion Landing Team	HD	Historical Division
Bu	Bureau	HMM	Marine Medium Helicopter Squadron
B-W	Borg-Warner (Corporation)	HMX	Marine Experimental Helicopter Squadron
CAC	Combined Action Company	HQMC	Headquarters Marine Corps
CAP	Combined Action Platoon	HRP-1	Rescuer (Flying Banana), transport helicopter manufactured by Piasecki
Capt	Captain	HRB	Historical Reference Branch
CARE	Cooperative for American Relief Everywhere	HRS	Historical Reference Section
CAS	Close Air Support	HRS-1	Observation helicopter, manufactured by Sikorsky
Cdr	Commander	HTL-2	Training helicopter, manufactured by Bell
CG	Commanding General	JASCO	Joint Assault Signal Company
CH-46D	Sea Knight, medium transport helicopter manufactured by Boeing-Vertol	JCC	Joint Coordinating Council
CH-53D	Sea Stallion, heavy transport helicopter manufactured by Sikorsky	JCS	Joint Chiefs of Staff
CMC	Commandant of the Marine Corps	LFASCU	Landing Force Air Support Control Unit
CMCS	Commandant of Marine Corps Schools	LANTAGLEX	Atlantic-Air Ground Landing Exercise
CNA	Center for Naval Analyses	LCdr	Lieutenant Commander
CNO	Chief of Naval Operations	LCM	Landing Craft, Mechanized
CO	Commanding Officer	LCVP	Landing Craft, Vehicle, Personnel
Col	Colonel	LFB	Landing Force Bulletin
C&R	(Bureau of) Construction and Repair	LFM	Landing Force Manual
CRS	Catholic Relief Services	LHA	Amphibious Assault Ship (Multi-Purpose)
CVE	Escort Carrier	LPD	Amphibious Transport, Dock
DASC	Direct Air Support Center	LPH	Amphibious Assault Ship (Helicopter Transport)
DCNO	Deputy Chief of Naval Operations	LSD	Dock Landing Ship
DC/S	Deputy Chief of Staff	LSM	Landing Ship, Medium
DOD	Department of Defense	LST	Landing Ship, Tank
ECEF	East Coast Expeditionary Force		
FAC	Forward Air Controller		

LtCol	Lieutenant Colonel	Op(s)	Operation(s)
LtGen	Lieutenant General	O&T	Operations and Training
ltr	letter	OV-10A	Bronco, light armed
LVT	Landing Vehicle Tracked		reconnaissance aircraft
LVTP	Landing Vehicle Tracked, Personnel		manufactured by North American
MAB	Marine Amphibious Brigade	PacFlt	Pacific Fleet
MACV	Military Assistant Command, Vietnam	PAT	Political Action Team
MAF	Marine Amphibious Force	QM	Quartermaster
MAG	Marine Aircraft Group	RAdm	Rear Admiral
MAGTF	Marine Air-Ground Task Force	RLT	Regimental Landing Team
Maj	Major	RD	Revolutionary Development
MPQ-14/TP	Mobile Ground Multi-Purpose Radar	R&D	Research and Development
MAU	Marine Amphibious Unit	RD&S	Research, Development, and Studies
MAW	Marine Aircraft Wing	RDT&E	Research, Development, Test, and Evaluation
MBT	Main Battle Tank	Regt	Regiment
MCB	Marine Corps Base	Rev	Revised
MCDC	Marine Corps Development Center	rpt	Report
MCDEC	Marine Corps Development and Education Command	RVN	Republic of Vietnam
MCEB	Marine Corps Expeditionary Brigade	SATS	Short Airfield for Tactical Support
MCEC	Marine Corps Education Center	SecNav	Secretary of the Navy
MCEF	Marine Corps Expeditionary Force	SID	Seismic Intrusion Detector
MCLFDA	Marine Corps Landing Force Development Activities	SOP	Standing Operating Procedure
MCLFDC	Marine Corps Landing Force Development Center	Sqdn	Squadron
MCM	Marine Corps Manual	STATE	Simplified Tactical Approach Terminal
MCO	Marine Corps Order	TACC	Tactical Air Command Center
MCOAG	Marine Corps Operations Analysis Group	TAF	Tactical Air Force
MCS	Marine Corps Schools	TAOC	Tactical Air Operations Center
MCTU	Marine Corps Test Unit	TDCC	Tactical Data Communications Central
MEDCAP	Medical Civic Action Program	T/E	Table of Equipment
MLRP	Marine Corps Long-Range Plan	TIC	Target Information Center
MMROP	Marine Corps Mid-Range Objectives Plan	TIPI	Tactical Information Processing Interpretation Systems
MOREST	Mobile Aircraft Arresting System	T/O	Table of Organization
MS.	Manuscript	UH-1E	Utility Helicopter, manufactured by Bell
MTDS	Marine Tactical Data System	UH-1G	Huey Cobra, helicopter gunship manufactured by Bell
NAVMCO	Navy-Marine Corps Order	USA	United States Army
NCO	Noncommissioned Officer	UNAAF	Unified Action Armed Forces
NDRC	National Defense Research Committee	USAID	U.S. Agency for International Development
NGF	Naval Gunfire	USFs	United States Fleet series
NHD	Naval History Division	USHS	United States Hospital Ship
NOA	Naval Operational Archives	USMC	United States Marine Corps
NVA	North Vietnamese Army	USN	United States Navy
NWC	Naval War College	USS	United States Ship
NWP	Naval War Publication	v.	volume
OAB	Operational Archives Branch	VAdm	Vice Admiral
OCMH	Office of the Chief of Military History	VC	Viet Cong
OIC	Officer in Charge	VMO	Marine Observation Squadron
ONI	Office of Naval Intelligence	V/STOL	Vertical, Short Take-Off and Landing
ONR	Office of Naval Research	WCEF	West Coast Expeditionary Force
OpO	Operation Order	WNRC	Washington National Records Center

APPENDIX D

Commandants of the Marine Corps in the Twentieth Century

Major General Charles Heywood.....	1891-1903	Lieutenant General Thomas Holcomb.....	1936-1943
Major General George F. Elliott.....	1903-1910	General Alexander A. Vandegrift.....	1944-1947
Major General William P. Biddle.....	1911-1914	General Clifton B. Cates.....	1948-1951
Major General George Barnett.....	1914-1920	General Lemuel C. Shepherd, Jr.....	1952-1955
Major General John A. Lejeune.....	1920-1929	General Randolph McC. Pate.....	1956-1959
Major General Wendell C. Neville.....	1929-1930	General David M. Shoup.....	1960-1963
Major General Ben H. Fuller.....	1930-1934	General Wallace M. Greene, Jr.....	1964-1967
Major General John H. Russell, Jr.....	1934-1936	General Leonard F. Chapman, Jr.....	1968-1971
		General Robert E. Cushman, Jr.	1972-

APPENDIX E

Commanders at Quantico

Commanders, Marine Barracks, Quantico, Virginia

Maj Chandler Campbell	14 May 1917-24 May 1917
Maj Julius S. Turrill	25 May 1917- 8 Jun 1917
Col Albertus W. Catlin	13 Jun 1917-26 Sep 1917
BGen John A. Lejeune	27 Sep 1917-23 May 1918
Col Smedley D. Butler	24 May 1918-20 Jun 1918
BGen Charles A. Doyen	21 Jun 1918- 5 Oct 1918
BGen Albertus W. Catlin	6 Oct 1918-11 Nov 1918
Col Dion Williams	12 Nov 1918-14 Nov 1918
BGen John T. Myers	15 Nov 1918-26 Oct 1919
MajGen John A. Lejeune	27 Oct 1919-29 Jun 1920
BGen Smedley D. Butler	30 Jun 1920- 4 Jan 1924
Col Ben H. Fuller	4 Jan 1924-10 Jan 1924
Col Charles S. Hill	11 Jan 1924-26 Feb 1924
BGen Dion Williams	27 Feb 1924-12 Aug 1924
MajGen Eli K. Cole	13 Aug 1924- 2 Jun 1927
MajGen Wendell C. Neville	3 Jun 1927-11 Dec 1928
BGen Harry Lee	12 Dec 1928-30 Jan 1929
MajGen Wendell C. Neville	31 Jan 1929- 4 Mar 1929
BGen Harry Lee	5 Mar 1929-23 Apr 1929
BGen Smedley D. Butler	24 Apr 1929-30 Sep 1931
BGen Randolph C. Berkeley	1 Oct 1931- 7 Nov 1931
Col James J. Meade	8 Nov 1931-27 Nov 1931
LtCol Andrew B. Drum	28 Nov 1931-30 Nov 1931
BGen John H. Russell	1 Dec 1931-29 Jan 1933
BGen James C. Breckinridge	30 Jan 1933-28 Feb 1933
BGen Harry Lee	1 Mar 1933-13 May 1935
Col Henry M. Manney, Jr.	14 May 1935-19 May 1935
BGen Thomas Holcomb	20 May 1935-17 Jun 1935
BGen Charles H. Lyman	18 Jun 1935-23 Jun 1937
MajGen James C. Breckinridge	24 Jun 1937-24 Sep 1939
MajGen Louis McC. Little	25 Sep 1939-31 Jan 1942

Muster Rolls do not show a commanding officer or commanding general for the period 1 Feb 1942 to 2 Oct 1942. BGen Samuel M. Harrington is shown as CMCS. BGen Julian C. Smith is shown as Commanding General, TTC.

MajGen Philip H. Torrey	2 Oct 1942-31 May 1946
MajGen Clifton B. Cates	1 Jun 1946-30 Dec 1947
BGen Oliver P. Smith	31 Dec 1947- 4 Apr 1948
MajGen Lemuel C. Shepherd, Jr.	26 Apr 1948-31 May 1948

Commandants, Marine Corps Schools, Quantico, Virginia

MajGen Lemuel C. Shepherd, Jr.	1 Jun 1948-16 Jun 1950
MajGen Franklin A. Hart	1 Jul 1950-22 Feb 1951
LtGen Franklin A. Hart	23 Feb 1951-31 Dec 1951
LtGen Clifton B. Cates	1 Jan 1952-30 Jun 1954
LtGen Gerald C. Thomas	1 Jul 1954-31 Dec 1955
LtGen Edwin A. Pollock	1 Jan 1956-22 Jul 1956
LtGen Merrill B. Twining	13 Sep 1956-30 Oct 1959

LtGen Edward W. Snedeker	31 Oct 1959-30 Jun 1963
LtGen Frederick L. Wieseman	1 Jul 1963-30 Jun 1966
LtGen James M. Masters, Sr.	1 Jul 1966-31 Dec 1967

*Commanding Generals, Marine Corps Development and
Education Command, Quantico, Virginia*

LtGen James M. Masters, Sr.	1 Jan 1968-30 Jun 1968
LtGen Lewis J. Fields	1 Jul 1968-30 Jun 1970
LtGen Raymond G. Davis	1 Jul 1970-11 Mar 1971
LtGen William G. Thrash	12 Mar 1971-30 Jun 1972
LtGen Robert P. Keller	1 Jul 1972-

APPENDIX F

Outline of the Development of the Landing Operations Manual*

1921—OPlan 712—Advanced Base Operations in Micronesia—Major Earl H. Ellis.

1925—Major S.M. Harrington—compiled study of small wars entitled "The Strategy and Tactics of Small Wars." This publication presented certain principles of landing operations as they applied to small wars. Only 5 percent of instruction at MCS concerned itself with landing operations of any kind.

1926—By this year instruction in landing operations increased to 49 hours and increased thereafter.

1927-1928—MCS completely revised and expanded courses on landing operations.

Early 1927—MCS recommended establishment of an advanced course for the study of expeditionary operations pertaining to USMC. CMC approved but owing to lack of personnel, course not established.

Early 1929—CMC directed that in September 1929 a class of four field officers be assembled at the MCS for study and preparation of plans for small wars and expeditions. In July, however, the CMC found that no officers were available and thereby disapproved of the establishment of this class.

1930—Map problems of Oahu, Southern California, etc., were now changed to be included as landing operations and coordination with the Naval War College had begun. NWC assumed that when an advanced base was to be seized it would be seized by Marines.

No detailed consideration of the seizure had been given.

At the MCS it had been assumed that the Marines in effecting a landing would be supported by naval gunfire.

The Field Officers Course general problem was to solve the occupation and defense of a naval base. This problem was presented to the Field Officers Course by NWC in advance so that the solution of the schools could be forwarded to the NWC in time for incorporation in the naval problem when discussed by the classes there.

1931—A banner year for MCS. A special board was appointed in 1931 for the express purpose of critically examining the entire curriculum of the schools. Classes continued to meet in their normal manner while the board prepared its recommendations for changes and improvements.

In 1931, a considerably revised schedule was adopted for the following school year (1932). Instruction based on material of the Command and General Staff School at Fort Benning was discarded or revised to conform with Marine Corps organization and material. Instruction was

based on all levels of command, from the attack force down through the force, division, brigade, regiment, and battalion.

Instructors at MCS were directed to rewrite all their material and gear it to the Corps' T/O and T/E. Instruction material in pamphlet form was written, but not a single manual.

During the remainder of 1931 and 1932 this writing and other revolutionary measures, although modified considerably before they were adopted, had a far-reaching effect upon the schools. The CMC summarized this small revolution in his annual report to SecNav for the FY ending 30 June 1933:

Problems were based on Marine Corps units and equipment.

Certain personnel were designated to prepare text books and pamphlets to cover fields of service for which no Marine texts existed. Support by naval gunfire and other naval agencies was developed in greater detail, and a closer relationship with the NWC was maintained. More effort was placed on the development of comprehensive courses on landing operations and small wars.

Recommendations of a special board on naval gunfire in support of landings were the basis of future experimental firings conducted by the Navy.

Units of measurement for computing cargo requirements for military equipment.

A system of cargo measurements and classification of equipment to facilitate the determination of cargo requirements and the loading of a ship to meet tactical requirements.

Preparation of reference data sheets.

Establishment of standard boat capacities for landing operations based on specific data.

1933—The Gallipoli operation had formed an important part of the background in research on landing operations. Early in 1933, each student was issued a copy of the British official history of the Gallipoli Campaign. The book, being the latest and most accurate publication on the subject, was used as a source book.

The Gallipoli Course was organized, 3 March to 5 April 1933, to acquaint the students with the Gallipoli Campaign, to train them in military research, and to provide the schools and through them the Marine Corps with material of value on a campaign which was in many respects of the type that the Marine Corps was expected to be expert in.

Between 1919 and 1933, the Joint Army-Navy Board had promulgated several manuals prescribing methods for Army and Navy cooperation in joint overseas expeditions. ("Joint Army and Navy Action in Coast

*War Plans Section, Division of O&T, HQMC (Box 3, Accession No. 65A-4939, WNRRC, Suitland, Md.).

Defense") ("Joint Action of the Army and Navy"—23 April 1927) ("Joint Overseas Expeditions"—12 January 1933)

The 1933 pamphlet's purpose was to "present a set of general principles for the planning and conduct of joint overseas expeditions in order to insure the most effective cooperation and coordination between Army and Navy forces participating therein." The directives contained in the manual were concerned with the techniques and agencies for cooperation and with the respective functions of each service in the conduct of joint operations. But a manual on landing operations (that is, how to do it) was still lacking.

29Sep33—CMC recommended that all classes be discontinued and that students and staff alike devote all time and effort towards the production of a landing operations manual.

30Oct33—CMCS received a directive from CMC to prepare a manual on landing operations as expeditiously as possible and to commence work not later than 15 November.

14Nov33—Classes were discontinued and the staff and students commenced work on the manual.

How it was done:

a. Instructors/students wrote out a chronological, itemized list of the things to be done from the inception to the tactical completion of a landing operation.

b. Committee of nine was appointed to consider these papers and to draw up a consolidated list embracing all recommendations and to group them under headings. Each member of the committee formulated his own list based on the results of his study of all papers submitted.

c. Each of these lists was in turn studied by another committee of five, who further consolidated the recommendations and produced a rough outline for the manual.

9Jan34—Officers from FMF, HQMC, and Quantico participated in a conference with respect to the outline. The outline/manual was based on experience, both personal and that culled from reports of landing operations, experimentation, and the evolution of instruction and problems at the MCS. Some 70 officers from lieutenants to brigadier generals attended the meeting—including four Navy officers and one Army officer.

Following the conference, the manual was divided into six subsections and responsibility for writing those sections was assigned to various committees. The bulk of the manual was grouped under three general headings: (1) Tactics, which included landing and defense of bases,

prefaced by a general discussion of landing operations and the purpose of the manual; (2) Staff Functions, Logistics, and Plans and Orders; and (3) Training. In addition, separate sections were assigned on naval activities and aviation, plus the usual appendices attendant to such a manual.

28Mar34—Committees that had been at work in earnest submitted to the CMC the first parts of the manual.

13Jun34—Last chapters submitted to CMC. For the school year (1934-35) the "Tentative Manual for Landing Operations" was used at MCS for all theoretical instruction in landing operations. This 1934 edition was in mimeograph format.

Jul34—Title changed to "Manual for Naval Overseas Operations" and published by Navy Department.

15May35—Board for Revision of Manual was convened at MCS headed by Lieutenant Colonel Charles D. Barrett.

9Jul35—A revised manual with photographs, better sketches, etc., was approved by the CNO 25 May 1935 and distributed by the CMC throughout the Marine Corps, Navy, and outside agencies with a "Restricted" classification. This 1935 edition became the first widely distributed, official publication of the *Tentative Landing Operations Manual*.

15Jun36—A board headed by Lieutenant Colonel Keller E. Rockey (including Lieutenant Colonels Archie F. Howard and Alfred H. Noble) was convened to revise the *Tentative Landing Operations Manual*.

26May37—CMC sent to CNO report of Board on Revision of *Tentative Landing Operations Manual*.

21Jun37—Complete with revisions, the *Tentative Landing Operations Manual* was issued under the technically correct new title of *Landing Operations Doctrine, U.S. Navy, 1937*. (This edition does not seem to have had a general distribution.)

15May38—A Marine Corps board for revision of *Landing Operations Doctrine, U.S. Navy, 1937*, was convened to make recommendations for new printing of the manual for FY 1939. Heading the board was Lieutenant Colonel Alfred H. Noble, with Captain Francis M. McAlister, and Quartermaster Clerk Percy H. Uhlinger (A&I), also recorder of original board).

25Nov38—CMC authorizes destruction of *Tentative Landing Operations Manual*. This manual, the 1935 version, and the technically correct edition entitled *Landing Operations Doctrine, U.S. Navy, 1937* were superseded by the issuance of the *Fleet Training Publication (FTP) #167*. FTP #167 was also known as *Landing Doctrine, U.S. Navy, 1938*.

APPENDIX G

Students and Instructors Who Were Assigned to MCS During Preparation of Tentative Landing Operations Manual— November 1933 through May 1934*

BGen James C. Breckinridge	CMCS
Col Ellis B. Miller	ACMCS
Col Edward W. Banker	Student (Joined Jan34)
LtCol Calhoun (N) Ancrum	Student
LtCol Lauren S. Willis	Student
Maj Cecil S. Baker	Instructor (Joined Apr34)
Maj David S. Barry, Jr.	Student
Maj Robert Blake	Instructor
Maj Henry M. Butler	Student
Maj Woolman G. Emory	Instructor (Joined Apr34)
Maj Louis E. Fagan, Jr.	Student
Maj George C. Hamner	Director of Correspondence Class
Maj Earl H. Jenkins	Instructor (Joined Apr34)
Maj Roy D. Lowell	Student
Maj John Marston	Director, First Year Class
Maj Charles J. Miller	Chief of Section F-3
Maj Harold L. Parsons	Director, Second Year Class
Maj Roger W. Peard	Student
Maj DeWitt Peck	Instructor
Maj Harold C. Pierce	Student
Maj Lowry B. Stephenson	Instructor (Joined May 34)
Maj Thad T. Taylor	Student
Maj Wilbur Thing	Student
Maj Thomas E. Thrasher, Jr.	Chief of Section F-1, F-2
Maj Samuel A. Woods, Jr.	Instructor
Capt Edward L. Burwell, Jr.	Student
Capt Eugene F.C. Collier	Instructor
Capt Ralph W. Culpepper	Student
Capt Gale T. Cummings	Instructor
Capt Thomas B. Gale	Instructor
Capt Alexander Galt	Instructor (Joined May 34)
Capt Charles C. Gill	Instructor
Capt John Kaluf	Instructor (Joined Feb34)
Capt Robert M. Montague	Officer in Charge Reproduction
Capt Stewart B. O'Neill	Student (Joined Jan34)
Capt Albert W. Paul	Instructor
Capt Edward S. Shaw	Student
Capt Norman E. True	Student
1stLt Samuel S. Ballentine	Student (Joined May34)
1stLt William O. Brice	Student
1stLt Pierson E. Conradt	Student
1stLt William H. Doyle	Student
1stLt Roy M. Gulick	Student
1stLt Ernest E. Linsert	Student
1stLt Louis E. Marie	Instructor
1stLt Arthur T. Mason	Instructor

*Muster Roll of Officers and Enlisted Men, Marine Corps Schools Detachment, Marine Barracks, Quantico, Va.,
1 November 1933 to 31 May 1934 (HRS, HD, HQMC).

1stLt Vernon E. Megee	-----	Instructor
1stLt John C. McQueen	-----	Instructor
1stLt Lyman G. Miller	-----	Student
1stLt Edwin A. Pollock	-----	Instructor
1stLt Frank D. Weir	-----	Student
1stLt Walter W. Wensinger	-----	Instructor

APPENDIX H

List of Participants in Conference Held at Quantico, Virginia on 9 January 1934 for Purpose of Discussing Tentative Landing Operations Manual*

Conference convened at 0900.

Present:

From Headquarters, Marine Corps, Washington, D.C.

LtCol Bennet Puryear, Jr.
Maj Charles D. Barrett
Maj Roy S. Geiger
Maj Ralph J. Mitchell
Maj Allen B. Turnage
Maj LeRoy P. Hunt
Maj Harry E. Pickett
Capt Thomas E. Bourke
Capt Francis F. Mulcahy

From Fleet Marine Force, Quantico, Va.

BGen Charles H. Lyman
LtCol Robert L. Denig
Maj Harold S. Fassett
Maj Leander A. Clapp
Maj Alexander A. Vandegrift
Maj Lloyd L. Leech
Capt Henry D. Linscott
Capt Bernard Lutel

From Post Headquarters

LtCol Philip H. Torrey
Maj Earl I. Buse
Capt Chaplain G. Hicks

From Marine Corps Schools

BGen James C. Breckinridge
Col Ellis B. Miller
LtCol Calhoun Ancrum
Maj David S. Barry, Jr.
Maj Robert Blake
Maj Henry M. Butler
Maj Louis E. Fagan, Jr.
Maj George C. Hamner

Maj Roy D. Lowell
Maj John Marston
Maj Charles J. Miller
Maj Harold L. Parsons
Maj Roger W. Peard
Maj DeWitt Peck
Maj Harold C. Pierce
Maj Thad T. Taylor
Maj Wilbur Thing
Maj Thomas E. Thrasher, Jr.
Maj Samuel A. Woods, Jr.
Capt Edward L. Burwell
Capt Eugene F.C. Collier
Capt Ralph W. Culpepper
Capt Gale T. Cummings
Capt Thomas B. Gale
Capt Charles C. Gill
Capt Robert M. Montague
Capt Albert W. Paul
Capt Edward S. Shaw
Capt Norman E. True
1stLt William O. Brice
1stLt Pierson E. Conredt
1stLt William H. Doyle
1stLt Roy M. Gulick
1stLt Ernest E. Linsert
1stLt Louis E. Marie
1stLt Arthur T. Mason
1stLt Vernon E. Megee
1stLt John C. McQueen
1stLt Lyman G. Miller
1stLt Edwin A. Pollack
1stLt Frank D. Weir
1stLt. Walter W. Wensinger
LCdr Thomas V. Cooper, USN
LCdr Clifford G. Richardson, USN
Lt Harold E. McCarthy, USN
Lt Joseph H. Seyfried, USN
1stLt John H. Stadler, USA

*Correspondence File 1520-30-120 (Record Group 127, National Archives).

APPENDIX I

Fleet Marine Force Organization and Composition Board (Hogaboom Board) Members(*)

MajGen Robert E. Hogaboom—President
BGen Ronald D. Salmon
Col Cliff Atkinson, Jr.
Col Frederick P. Henderson
Col Henry H. Crockett
Col Norman J. Anderson

Col William K. Jones
Col Allan Sutter
Col David W. Stonecliffe
Col Odell M. Conoley
Col William R. Campbell
Col Herbert H. Williarzon
Col Keith B. McCutcheon
Col Bruce T. Hemphill
Col Lewis W. Walt
Maj Frank R. Young—Recorder

*CMC ltr to CG's FMFLant, FMFPac, dtd 30 April
1956, AO3A-cec, 03C9756.

APPENDIX J

Citation to Accompany the Award of The Medal of Merit to Donald Roebling

DONALD ROEBLING, for exceptionally meritorious conduct in the performance of outstanding services to the United States. Mr. Roebling conceived, developed, and perfected an amphibian vehicle capable of traversing both land and water, presented it to the Government of the United States and released it for manufacture without compensation. Conceived originally in December 1934, for humanitarian purposes as a means of carrying emergency supplies to inundated and isolated areas in Florida during the hurricane seasons, and completed after 5 years of intensive research, tireless effort, and tremendous personal expense, his fourth model, the "Roebling Alligator" is the forerunner of all amphibian tractors constructed for the Navy, the Marines, the Army, and Lend-Lease. The Roebling Amphibian Tractor contributed to the success of our armed forces in Africa, and in addition, rendered valuable service during landings on the Pacific Ocean Islands, and with its unique ability to negotiate surf and beach terrain, moved supplies and equipment to otherwise inaccessible locations, broke trails through the jungle and formed pontoons for temporary bridges permitting the passage of troops. Mr. Roebling's unselfish devotion to the perfecting of an effective war weapon, released without thought of benefit to himself, was a vital and inspiring contribution to the defense of his country.

/S/ HARRY TRUMAN

THE WHITE HOUSE
December 18, 1946.

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21 September 1970

"There is one resource of the Marine Corps that has always been fully developed: the individual Marine. What made a good Marine during the Revolutionary War still makes a good Marine. A competent, loyal, highly motivated Marine is an asset far exceeding in value all the developments of a technological age."

General Oliver P. Smith, USMC (Retired)